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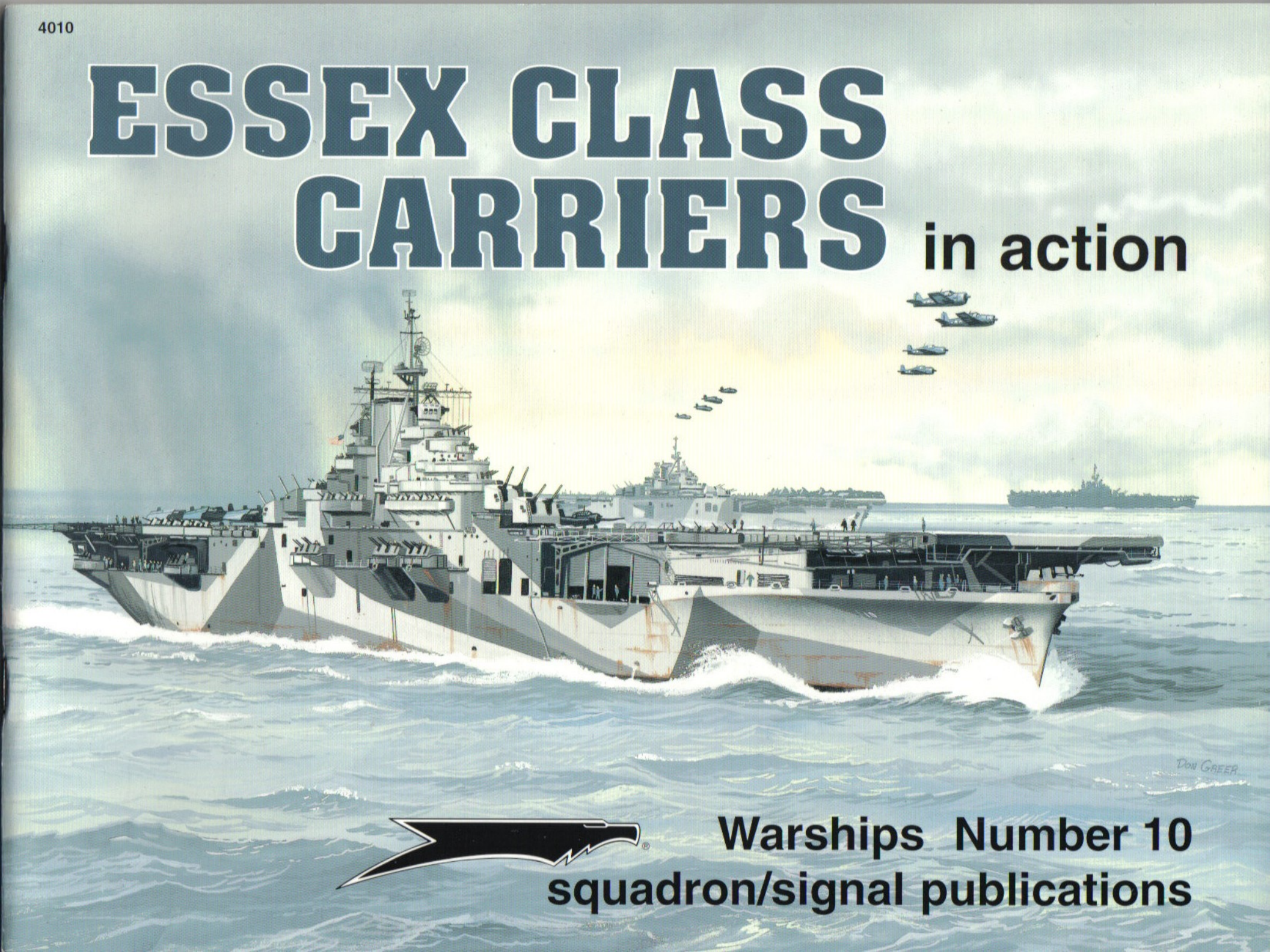
ESSEX CLASS CARRIERS in action



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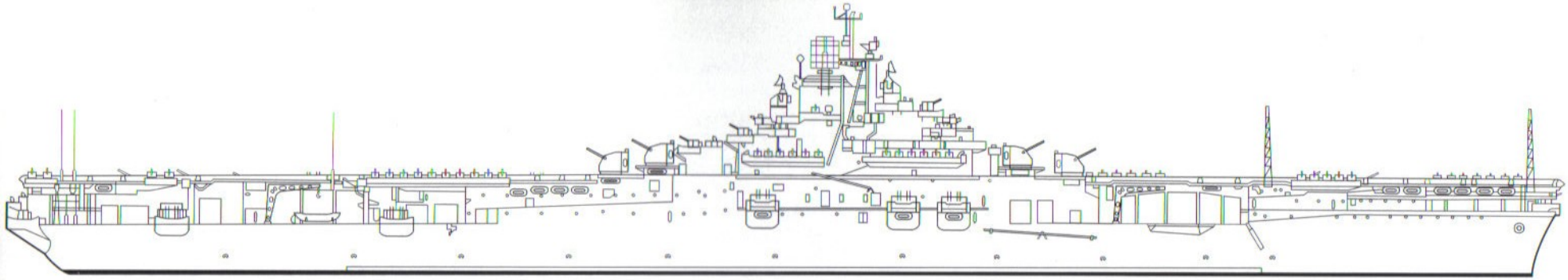
ESSEX CLASS CARRIERS in action

By MICHAEL C. SMITH
Color by Don Greer
Illustrated by Ernesto Cumpian



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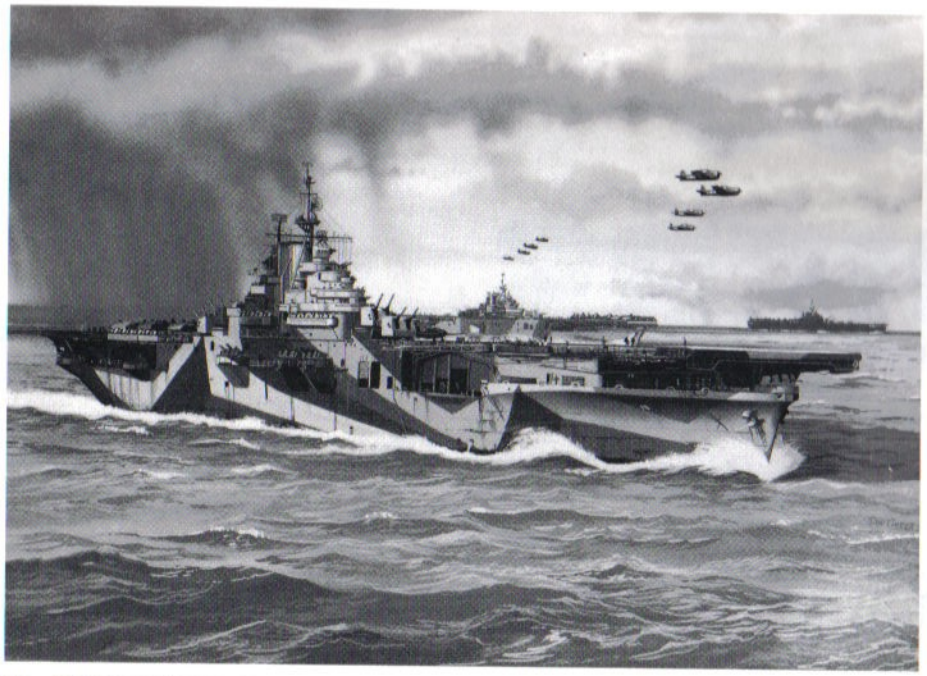

The USS YORKTOWN (CV-10) in Design 10A 'dazzle' camouflage leads two other Essex Class carriers in opera tions off the Philippines in late 1944.

Acknowledgements

Many of the photographs used in this book were obtained from the photographic section of the Naval Historical Center at the Washington Navy Yard. I would particularly like to thank Ed Finney, Chuck Haberlein and Jack Green at the NHC for their assistance in reviewing and copying the many photos necessary for this publication. I would also like to thank Pete Clayton, Larry Sowinski, Frank Desisto, Judith Whipple, Steve Ewing, and Raymond Mann for their invaluable comments and expertise. Most of all, I would like to thank my wife Jamie Noland Smith for her patience and her support, without which this book could not have been completed.

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ISBN 0-89747-

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'Murderers' Row' at Ulithi in December of 1944. Front to rear in dazzle camouflage are WASP, YORKTOWN, HORNET, HANCOCK and TICONDEROGA. Behind is LEXINGTON in overall Navy Blue. (80-G-294129)

Introduction

During World War II the United States built three types of aircraft carriers, the *Essex* class heavy fleet carriers (CVs), the *Independence* class light carriers converted from cruisers (CVLs), and "escort" carriers, converted from merchant or tanker hulls (CVEs). The 24 ships of the *Essex* class were not remarkable for any great design innovation, but essentially for being in the right place at the right time, and for doing well the task history gave them. Fourteen of the class saw action against Japan from 1943 to 1945, and all but the two most severely damaged in the war saw extensive postwar action as fleet carriers, antisubmarine carriers, training carriers, and amphibious assault ships. Despite its success, however, the *Essex* class was still unsatisfactory in many respects. It was based on a class of ships restricted by treaty, its design was handicapped by a lack of operational experience, and it was forced to handle massive increases in aircraft size, antiaircraft armament and crew, all of which resulted in serious overcrowding and overloading.

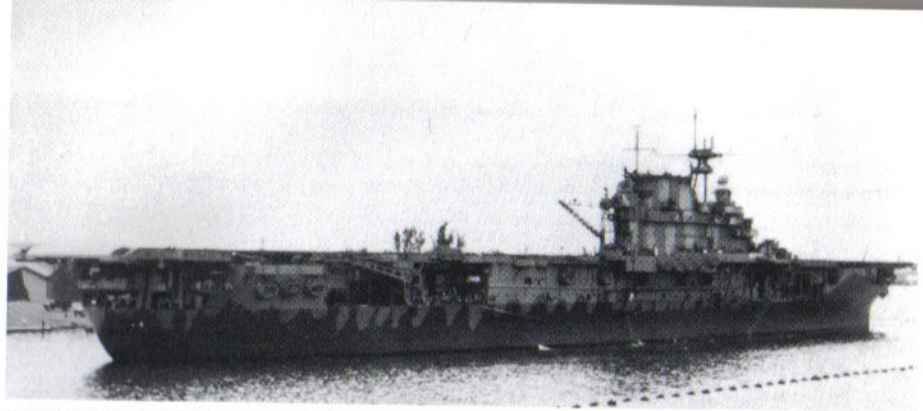
The ultimate success of the *Essex* class despite these shortcomings can be attributed to several factors. First, the ships operated the largest air group adaptable to U.S. "deck-load strike" tactics. Second, the sheer numbers with which the carriers were available during the war, along with the Independence class CVLs which often furnished extra fighter cover and the CVEs which took over transport duties, allowed the ships to group together for protection far superior to what their older sisters had enjoyed in 1942. Finally, the declining quality of Japanese aircrews beginning in 1943 meant the end of the devastatingly effective torpedo strikes that had faced the *Lexington* and *Yorktown* class ships in 1942. While inflicting much more extensive damage and casualties, the kamikaze attacks of 1944 and 1945 hit the *Essex* class carriers where they could afford it, above the water. The heavy damage inflicted on the *Franklin* by a kamikaze attack on 19 March 1945 devastated the ship topside and killed or wounded 996 of her crew, but did not seriously threaten her ability to stay afloat. The carriers could be temporarily put out of action by kamikazes, and frequently were, but they would not be sunk.

Still, the kamikaze attacks off Okinawa and Japan marked, at least temporarily, the limits of the carriers. Tremedously effective in attacking surface combatants and shipping, the carriers' aircraft lacked the sheer weight of bombs necessary to produce widespread damage against large land targets. In addition, the carriers' air groups had to be reserved primarily for defending against air attack, thus reducing the carriers' effectiveness even more. When combined with the relatively minor level of damage that the flight and hangar decks could sustain without being put out of action, these factors reduced the carriers' offensive role during the last stages of the war, at least until Japan's ability to build and operate aircraft was eliminated.

The *Essex* class carriers served in numbers too large, and too late in the war to gain the fame of the prewar carriers whose names they frequently bore, but they served longer than any other class, and through wars never dreamed of by their builders. Those that survive as museum ships today are a fitting tribute to the class that ruled the Pacific fifty years ago.

Origins of the Essex Class

The Essex class began as a pair of carriers authorized under the Naval Expansion Act of 1938 (the Vinson-Trammell Act), which allowed 40,000 tons of new carrier construction. The first unit, the U.S.S. *Hornet* (CV-8), was ordered in March of 1939, and laid down in



USS HORNET (CV-8) moored off Ford Island in Pearl Harbor in August of 1942. She and the ESSEX were originally to have been sister ships in a new design before wartime pressures forced the completion of the HORNET to the earlier YORKTOWN design. (K-439)

September of 1939. Due to the urgent need for new carriers, the *Hornet* was completed to the 1934 *Yorktown* design of 19,000 tons since a new design would have delayed construction some fifteen months, and it did not appear that much more could be achieved in less than 20,000 tons. Design changes were limited to replacing the Mark 33 fire directors with Mark 37, reducing the size of the foretop to compensate for the added weight, and slightly increasing the flight deck width at the bow.

The U.S.S. *Essex* (CV-9), however, was to be built to a new design, intended for operations in the Pacific against Japan. CV-9 began as a ship designed to concentrate all the available 20,400 tons in a single carrier, since operations aboard the *Yorktown* and *Enterprise*, and the 14,700 ton *Wasp* confirmed that a large carrier was more cost-effective. But while based on the *Yorktown* class, the new design was to reflect the experience gained in operations on the earlier ships.

The new ship was to be faster, better protected and better armed, but principally, it was to operate a larger air group of larger aircraft. Fleet operations had demonstrated the need for a fifth squadron, one of fighters, to join the existing torpedo, bomber, scout, and fighter squadrons. However, the size of the air group was determined by the size of the flight deck since U.S. "deck load strike" carrier tactics dictated that the air group had to fit on the flight deck while still leaving sufficient room for the first planes to take off. Accordingly, designers sought to increase the size of the flight deck by reducing flight deck obstructions. The starboard gallery deck 5" guns of the *Yorktown* class were replaced with twin deck turrets, eliminating the wasteful deck cutouts. The size of the island was also minimized by moving squadron ready rooms to the gallery deck immediately beneath the flight deck. Finally, the midship elevator was replaced with a more advanced version of the deck edge elevator then being tested on the *Wasp*.

When work began on the *Essex* design in early 1939, the designers had only one year of operational experience of the *Yorktown* class on which to base changes. Designers were also handicapped by operational requirements imposed by the Navy that later proved to be of little use, such as the requirement that the ships be able to steam backwards to recover aircraft. Some obsolete requirements were discarded, such as the ability to operate independently with an 8 inch main battery and armor protection against cruiser fire similar to that of the *Lexington* and Saratoga.

The class was better armed than its predecessors. It received an improved five inch battery of twelve barrels compared with the *Yorktown*'s eight, and the *Yorktown*'s 1.1' quads and .50

USS ESSEX (CV-9) floats in the James River after launching on 31 July 1942 at the Newport News Shipbuilding and Dry Dock Co. (NH 54109)

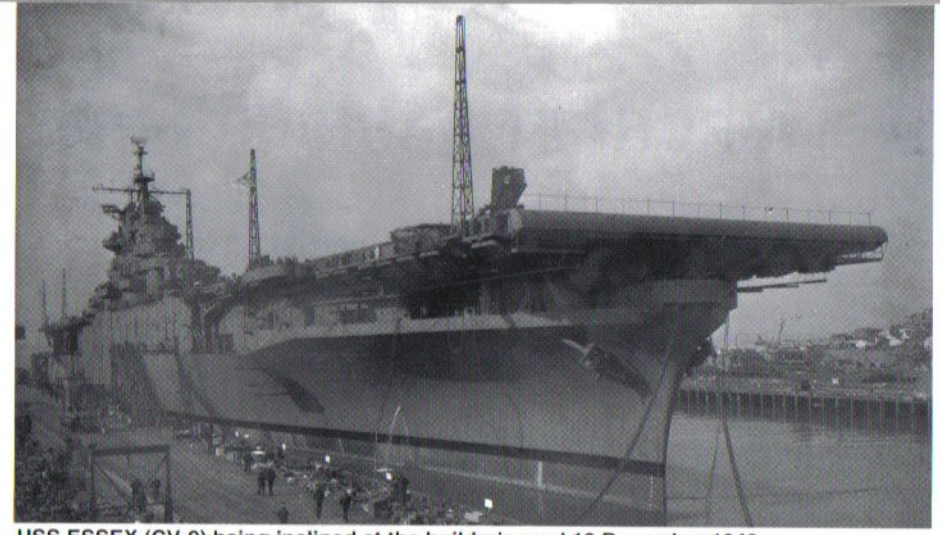
caliber antiaircraft weapons were upgraded to the new 40mm quads and 20mm Oerlikons.

Passive defense included an armored hangar deck and waterline belt to protect the ship's vitals. Flight deck armor was rejected since the increase in weight and loss of stability was prohibitive. The interest in flight deck armour stemmed from British experience with bombing attacks against carriers in the Mediterranean, but was ultimately rejected not only because of the physical costs, but because the American practice of carrying aircraft on the flight deck would cause the results of a deck fire to be disastrous even with the presence of deck armor.

The *Essex* class also had better subdivision than its predecessors, with a third bottom and alternating powerplants. The armored box in the hull was also extended to accommodate the alternating engine and boiler rooms needed for survivability. These alternating boiler and engine rooms had been placed in the *Wasp*, but not the *Hornet*, and the official Navy report on *Hornet*'s loss made it clear that they would have saved her at Santa Cruz in October of 1942, when she was immobilized and had to be abandoned to advancing Japanese destroyers. A major flaw in the class, however, was the ventilation system, which was intended to minimize openings in the armored hangar deck. The result was a long conduit for smoke and burning materials, as was demonstrated in the disastrous fire on the *Franklin*. Another flaw was the placement of ready rooms and crowded personnel quarters in the gallery deck immediately under the flight deck which was unprotected in the event of attack. Both defects were corrected immediately after the war in redesigns and refits.

However, all these improvements could not be made in a ship only a few hundred tons larger than its predecessor. CV-9 rapidly grew from 20,400 tons to surpass the 23,000 tons per carrier limitation of the London Naval Treaty of 1936. The ships eventually displaced 27,100 tons when commissioned, and 33,000 tons full load. The basic design would grow even further to 33,000 in postwar refits, and as much as 44,700 at full load.

By 1940, it was clear that the Navy needed much more than one additional carrier. Congress authorized CVs 10 through 12 in the 'Two Ocean Navy' Act of May 1940, and CVs 13 through 19 after the fall of France in the summer of 1940. CVs 20 and 21 were ordered on 15 December 1941, immediately after the attack on Pearl Harbor, CVs 31 to 40 in August of 1942, and CVs 45 through 47 in June of 1943, just as the first unit was entering the war zone. Six more, CVs 50 through 55, were proposed in 1945, but were disapproved by President Roosevelt. Of these, twenty-six ships were actually begun, and twenty-four were completed, one of which was to a modified design after the war. Of the twenty-four, seventeen were completed before VJ Day, with fourteen reaching the war zone in time to see action against Japan.

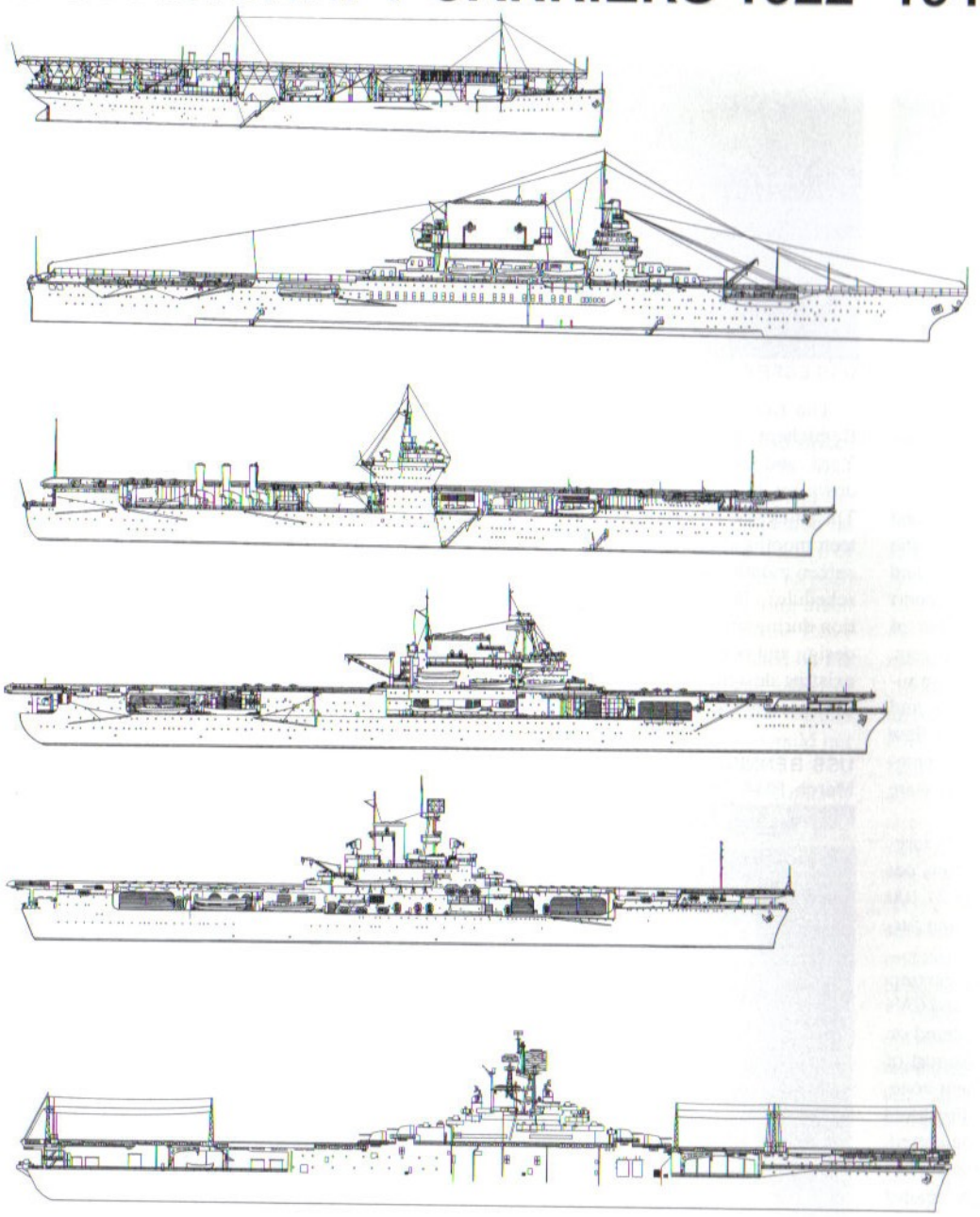


USS ESSEX (CV-9) being inclined at the builder's yard 19 December 1942.

The *Essex* class ships were built at Newport News and Norfolk Navy Yard in Virginia, Bethlehem Quincy (formerly Fore River Shipyards) in Massachusetts, the Philadelphia Navy Yard, and the New York Navy Yard in Brooklyn, New York. The *Essex* herself was laid down on 28 April 1941 on the ways on which the *Hornet* had been built at Newport News. The shipyards produced the ships far ahead of schedule, with *Essex* being completed some fifteen months ahead of the March 1944 date projected when she was laid down, *Yorktown* seventeen months early, and *Hornet* six months early (despite being laid down six months behind schedule). While some of this was attributable to the high priority given to carrier construction during the early part of the war, much can be credited to shipyard workers and simplified design and construction. The ships exemplified the wartime practice of mass production of an existing design, which shortened construction time and allowed standardization of materials, thus bringing the maximum amount of steel to the war zone in the minimum amount of time.

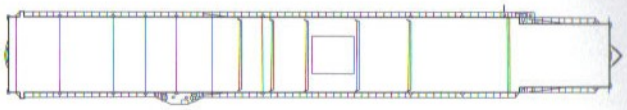
USS BENNINGTON (CV-20) under construction in New York Navy Yard in Brooklyn, 9 March 1944. The battleship USS MISSOURI (BB-63) is fitting out at top. (NH 93234)

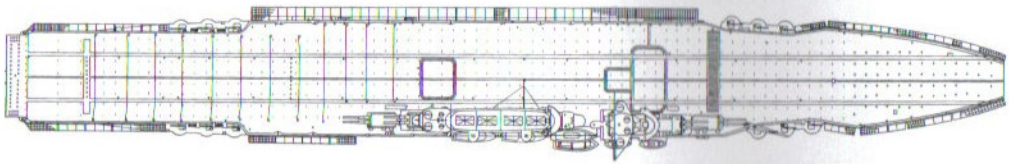
U.S. AIRCRAFT CARRIERS 1922 -1943

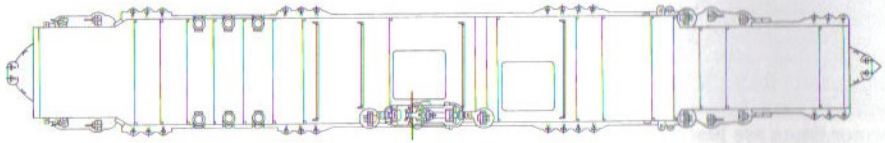


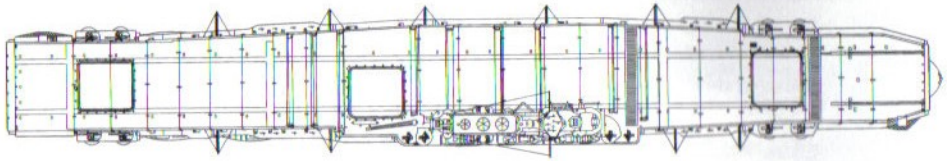
	Length at Waterline
U.S.S. LANGLEY (CV-1)	520 ft
U.S. S. LEXINGTON (CV-2)	850 ft
U.S.S. RANGER (CV-4)	730 ft
U.S.S. YORKTOWN (CV-5)	770 ft
U.S.S. WASP (CV-7)	690 ft
U.S.S. ESSEX (CV-9)	820 ft

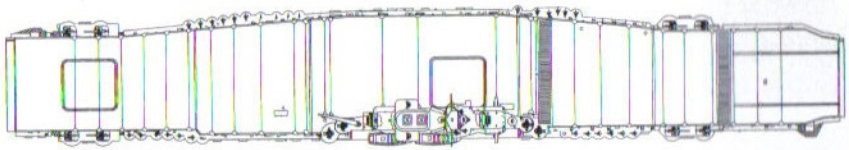
FLIGHT DECKS











	Length of Flight Deck
U.S.S. LANGLEY (CV-1)	523 ft
U.S. S. LEXINGTON (CV-2)	866 ft
U.S.S. RANGER (CV-4)	709 ft
U.S.S. YORKTOWN (CV-5)	802 ft
U.S.S. WASP (CV-7)	727 ft
U.S.S. ESSEX (CV-9)	862 ft

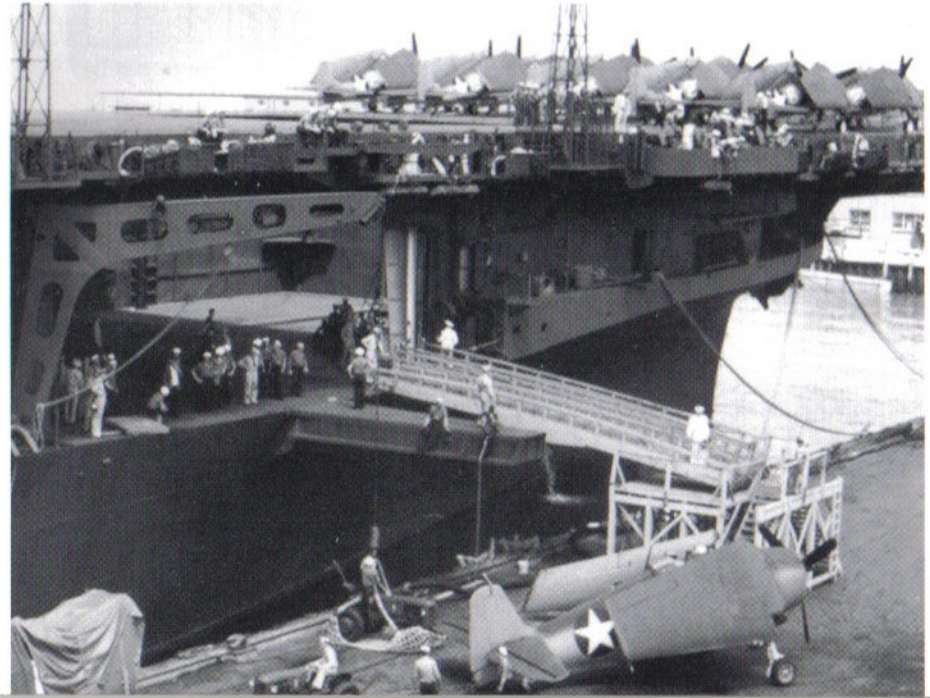
ESSEX CLASS CARRIERS

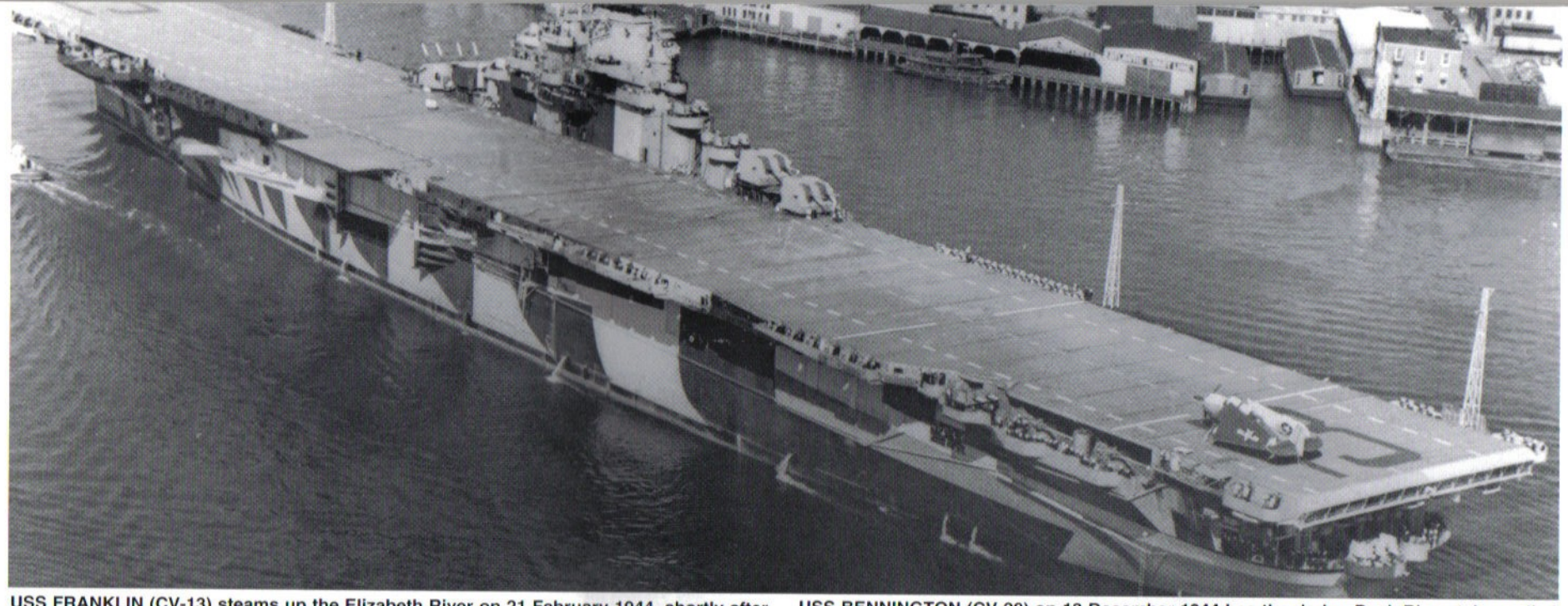
HULL NO.	NAME	COMMISSIONED
CV-9	ESSEX	31December 1942
CV-10	YORKTOWN	15 April 1943
CV-11	INTREPID	16 August 1943
CV-12	HORNET	29 November 1943
CV-13	FRANKLIN	31 January 1944
CV-14	TICONDEROGA	8 May 194
CV-15	RANDOLPH	9 October 1944
CV-16	LEXINGTON	17 February 1943
CV-17	BUNKER HILL	24 May 1943
CV-18	WASP	24 November 1943
CV-19	HANCOCK	15 April 1944
CV-20	BENNINGTON	6 August 1944
CV-21	BOXER	16 April 1945
CV-31	BONHOMME RICHARD	26 November 1944
CV-32	LEYTE	11 April 1946
CV-33	KEARSARGE	2 March 1946
CV-34	ORISKANY	25 September 1950
CV-35	REPRISAL	Cancelled 15 August 1945
CV-36	ANTIETAM	28 January 1945
CV-37	PRINCETON	18 November 1945
CV-38	SHANGRI LA	15 September 1944
CV-39	LAKE CHAMPLAIN	3 June 1945
CV-40	TARAWA	8 December 1945
CV-45	VALLEY FORGE	3 November 1946
CV-46	IWO JIMA cancelled	15 August 1945
CV-47	PHILIPPINE SEA	11 May 1946
CVs-50-55		Cancelled 27 March 1945

(Above) USS ESSEX (CV-9) on her way to the war zone 20 March 1943. Both the F6F Hellcats and SBD Dauntlesses are in the circa 1942 Blue Gray over Light Gray paint scheme and the large round national insignias. (80-G-K-698)

(Above left) USS LEXINGTON (CV-16) in Boston Harbor on her commissioning day, 17 February 1943. Snow can be seen on her flight deck and ice surrounds her hull, but warmer times are just ahead. (80-G-35657)

(Below) USS YORKTOWN (CV-10) loads aircraft for her shakedown cruise in May of 1943. The F6F Hellcats carry the new tricolor paint scheme, but retain the 1942-style large round national insignia. The raised flight deck antenna and hangar catapult extension in the lowered position can be seen. (80-G-K-15270)





USS FRANKLIN (CV-13) steams up the Elizabeth River on 21 February 1944, shortly after her commissioning. FRANKLIN wears Measure 32/6A camouflage with No. 21 Blue flight deck stain and light deck striping.

USS BENNINGTON (CV-20) on 13 December 1944 has the darker Deck Blue stain applied to her flight deck. The difference in deck colors can be compared to the darkest camouflage color applied to the hull which is Dull Black on FRANKLIN. (80-G-298092).

Wartime Modifications

The design of the *Essex* class did not remain static during the war, but changed to incorporate lessons learned from combat and fleet operations. Most important of these lessons was the critical need to increase the carriers' antiaircraft defenses, especially from the vulnerable bow and stern. The most radical redesign proposed, which would have eliminated the island and moved the 5 inch gun turrets to the corners of the flight deck, was rejected in favor of a relatively minor redesign which allowed the placement of an additional 40mm quad at the bow and stern, the replacement of the hangar deck catapult with two 40mm quads and a third Mark 37 fire director, a second flight deck catapult, and a new ventilation system. The compromise plan necessitated a minor reduction in flight deck length of 11 feet at the bow and 7 feet at the stern, in order to increase the cones of fire of the new 40 mm mounts. The third director was never fitted, although *Ticonderoga* and *Hancock* carried the required cutout in the flight deck when completed. The unneeded cutout was removed during 1944 refits when air personnel complained that it unnecessarily narrowed the flight deck, and the original flight deck length was restored in July of 1944.

The most significant change resulting from the redesign was the reshaping and lengthening of the bow lines to allow the placement of the second 40mm at the extreme end of the bow. For this reason, the ships that received the wartime modifications are frequently referred to as the "long hull" ships. The clipper bows themselves proved less than successful since it was found that they caused excessive slamming in heavy seas, and eventually the bows on the entire class would be strengthened after the *Ticonderoga* buckled her hangar strength deck in a postwar passage around Cape Horn.

The additions to the ships' armament were not limited to this one redesign. Beginning in March of 1944, some units were fitted with five 40mm quads on the starboard side of the hull, four on the portside gallery and hangar deck, and for the short-hull ships, an additional mount on an enlarged stern sponson. 20mm mounts were also increased from approximately 44 in 1943 to 61 in 1945. The urgent need for improved antiaircraft weapons to deal with kamikazes also resulted in the addition of new weapons to the carriers' arsenal, including double 20mm mounts and Army quadruple .50 caliber machine guns.

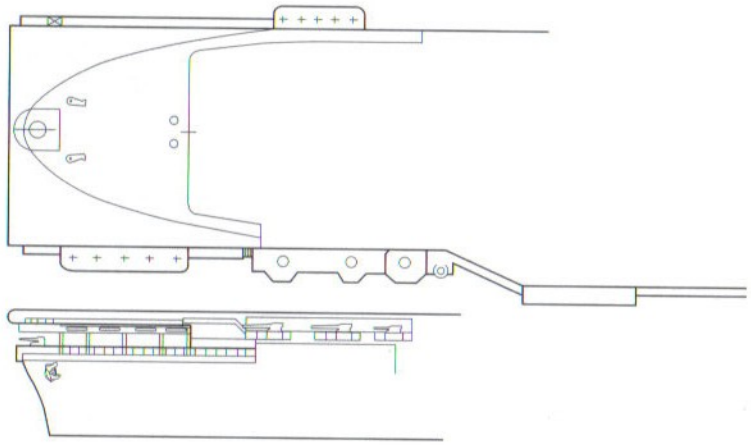
The undesired result was the addition of substantial weight to a class that could ill afford it. The ships in service gained approximately 1,000 tons in general weight over the course of the war, much of it high up in the ship, where its adverse effect on stability was magnified. By the spring of 1945 the weight problem aboard the carriers had become so critical that ready service ammunition topside was limited to 800 rounds per weapon to preserve stability in the event of damage. Extreme overloading during the war had so compromised the ships' underwater protection that they could have been lost with one torpedo hit in a vital area, and almost certainly from two on the same side, which the *Lexington* and *Yorktown* classes easily survived. Fortunately, with the exception of the *Lexington* and *Intrepid*, the class never faced torpedo damage.

Overloading resulted from several factors. In addition to the beefed up antiaircraft armament, overcrowding also contributed to the ship's weight problems, as demands for additional radar, aircrew, support personnel, and antiaircraft gunners greatly increased the number of men aboard the ships. Designed to carry 215 officers and 2,171 enlisted men, the *Essex* class actually commissioned at 226 officers and 2880 enlisted men, and by war's end carried 382 officers and 3003 enlisted men, a 50 percent increase over the original design.

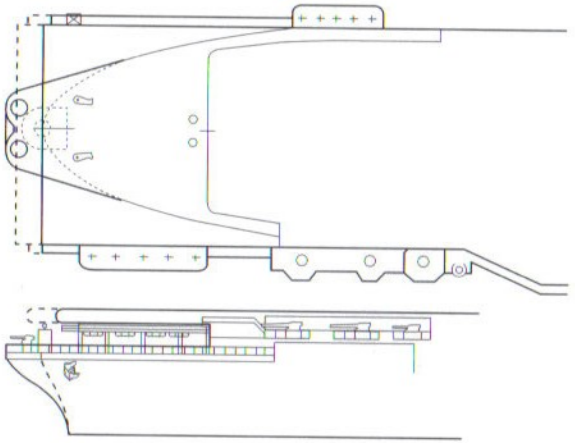
The size and weight of the air group was also constantly increasing. In 1940 the *Essex* class was designed to handle a 6,700 pound fighter, 9,395 fully loaded, and a 7,000 pound bomber, 11,000 fully loaded. The class actually went into battle with fighters and bombers weighing 13,500 and 16,000 pounds respectively. The number of planes went up as well. Early in 1942 carrier air groups discovered the necessity of adding additional fighters for task force defense, no matter the overcrowded hangars and flight decks. Designed to carry 91 aircraft, active and reserve, the *Essex* class at war's end were operating 103 much larger, and heavier aircraft.

Wartime refits could do little to address these chronic problems, and the carriers' weight problems would not be solved until postwar refits added four foot wide "blisters" to each side of the ship to provide additional buoyancy to enable the ships to carry extra weight without loss of reserve stability in the event of damage.

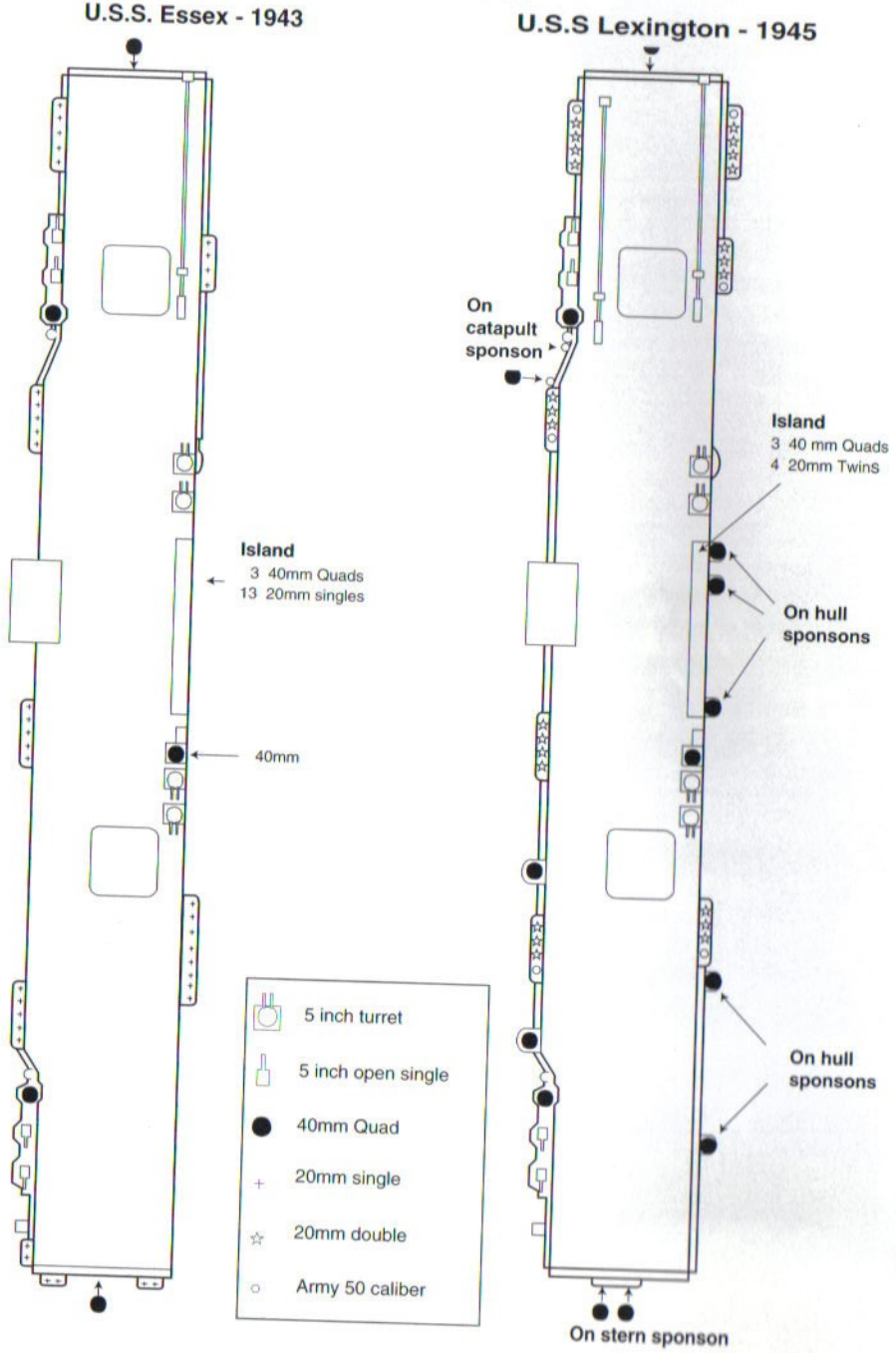
Short Hull



Long Hull

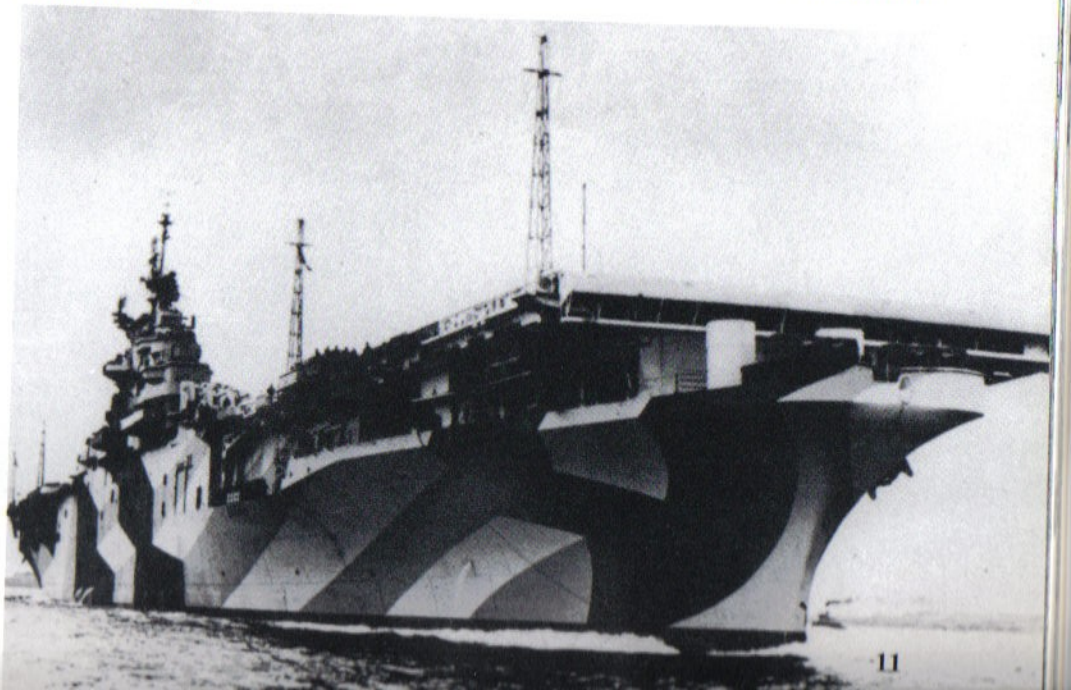


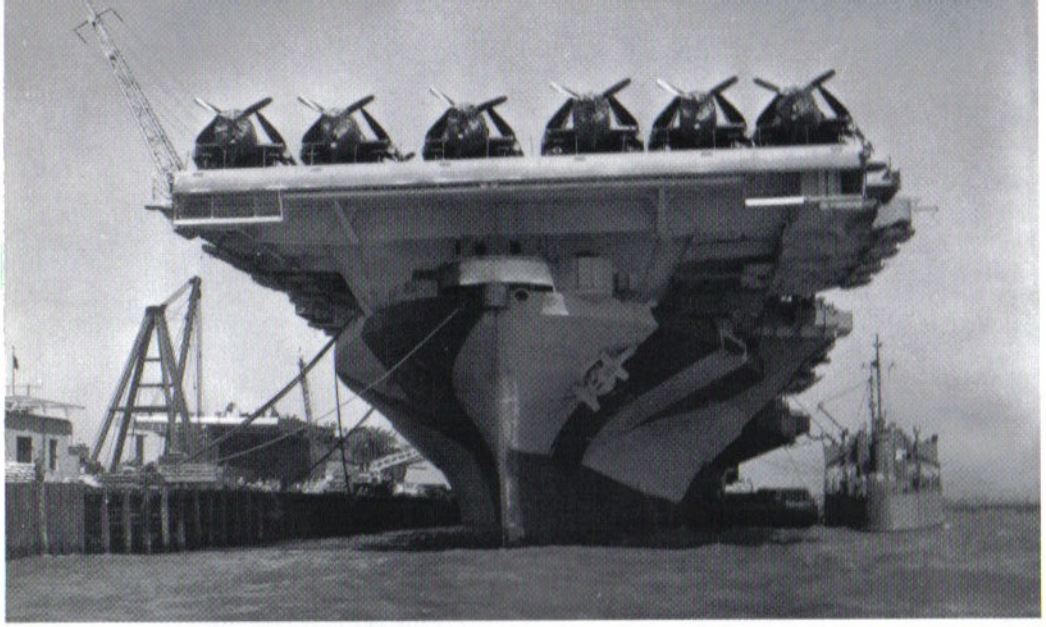
Anti Aircraft Armament: 1943-1945



USS ESSEX (CV-9) seen at her launching illustrates the blunt bow of the 'short hull' ships. (NH 67736)

With her antennas reaching skyward USS HANCOCK (CV-19) illustrates the clipper bow and shortened flight deck of the 'long hull' ships which, allowed an increase in 40mm guns. (NH 91546)





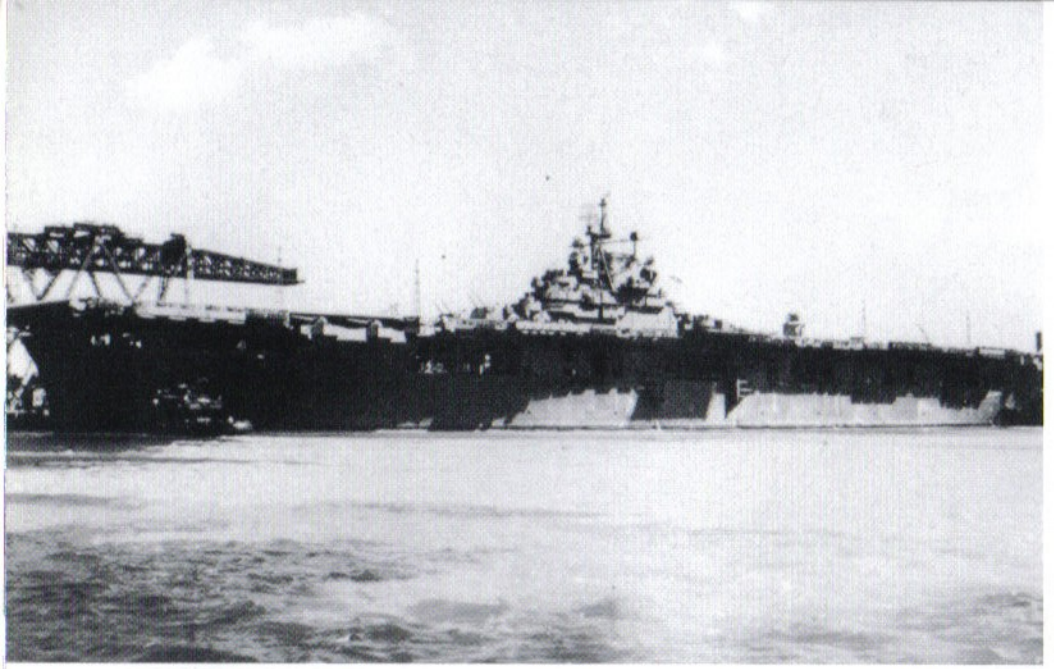
(Above) The USS INTREPID (CV-11), refitting at Hunters Point in June of 1944, is one of the 'short hulls' with a single 40mm mount on her bow.

USS HANCOCK (CV-19) at Boston Navy Yard

USS BENNINGTON (CV-20) on her shakedown cruise on 20 October 1944, before heading toward the Pacific Theater. (80-G-289645)

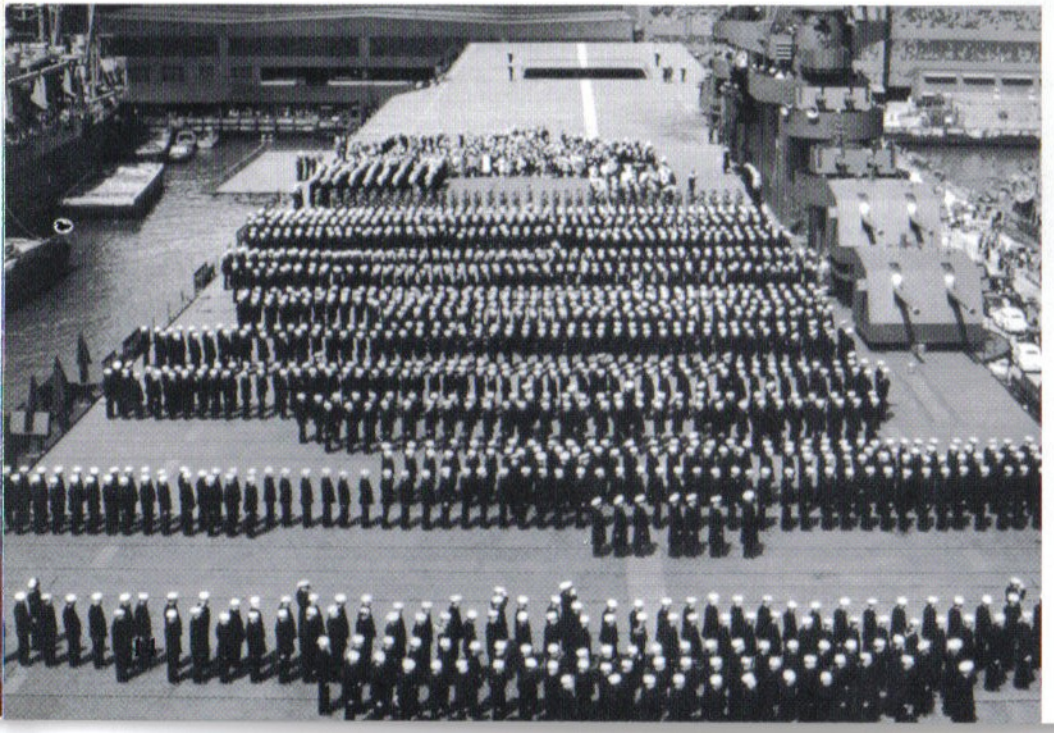
(Above) USS YORKTOWN (CV-10) while supporting the landings on Saipan 17 July 1944. The darkness of the Deck Blue stained flight deck on the YORKTOWN is apparent. (80-G-238298)

(Below) USS HORNET (CV-12) and a light cruiser refuel on 3 August 1944, the day before the HORNET participated in air strikes on Chichi Jima. The Light Blue flight deck stain contrasts with the aircraft on her deck. (80-G-367245)



USS ESSEX (CV-9) at Pearl Harbor on 8 August 1943. Along with USS YORKTOWN (CV-10) and USS INDEPENDENCE (CVL-22), the ESSEX would see its first action on 31 August when Marcus Island was raided. (80-G-K-551)

Crew of the USS YORKTOWN (CV-10) assembled for commissioning ceremonies at Norfolk Navy Yard 15 April 1943. (80-G-K-14834)



U.S.S. ESSEX (CV-9)

Commissioned on the last day of 1942, the *Essex* first saw action in the raids on Marcus Island on 31 August 1943. *Essex* also participated in raids against Wake and Rabaul and supported tha landings in the Gilberts and the Marshalls. In 1944 *Essex* saw action in the Marshalls, Truk, the Marianas, the Palaus, the Philippines, and off Okinawa and Formosa. In the final year of the war she participated in actions off the Philippines, Formosa, Iwo Jima and Japan. *Essex* was hit by a kamikaze in November of 1944 while operating off Luzon with the Third Fleet.

In 1947 *Essex* was placed in reserve. After modernization and further service, *Essex* was decommissioned in 1969 and scrapped in 1975.

U.S.S. YORKTOWN (CV-10)

The *Yorktown* was commissioned on 15 April, 1943 and after an accelerated shakedown, arrived at Pearl Harbor on 24 July 1943. Like *Essex*, she saw her first action in the raids on Marcus and Wake Islands. *Yorktown* supported landings in the Gilberts, the Marshalls, the Marianas and the Philippines in 1943-1944, as well as participating in raids on Truk and the Bonin Islands. Following a two-month refit during the fall of 1944, *Yorktown* returned to the war zone where she took part in operations in the South China Sea, and off the Philippines, Formosa, the Bonins, Okinawa, and the Japanese home islands where she received damage in a bombing attack on 18 March 1945. After the end of the war, *Yorktown* took part in Magic Carpet operations before being placed in reserve in 1947.

After further service and modernizations, *Yorktown* became a museum ship at Patriots Point, South Carolina in 1975.

U.S.S. INTREPID (CV-11)

Commissioned on 11 August 1943, the *Intrepid* saw her first action in January of 1944 supporting operations at Kwajalein. While participating in raids on Truk in February of 1944, *Intrepid* was hit by a torpedo which damaged her steering apparatus, requiring repairs which kept her from the war zone until June. She then participated in operations off the Palaus, the Philippines, Okinawa, and Formosa. She was struck twice by kamikazes in the fall of 1944. Returning to action in March of 1945, she participated in strikes against the Japanese home islands and Okinawa, suffering another kamikaze hit in April of 1945 — earning the dubious distinction of the Navy's most frequently hit aircraft carrier.

Intrepid was placed in reserve in 1947, and after further service and modernizations now serves as flagship of the *Intrepid* Sea/Air/Space museum in New York City.

U.S.S. HORNET (CV-12)

The *Hornet* was commissioned in November 1943, and supported operations at the Marianas, the Bonins, the Palaus, Okinawa, and the Philippines in 1944. In 1945 she saw action off Formosa, Indo-China, Okinawa and Japan. After participating in "Magic Carpet" operations, *Hornet* was withdrawn from service in 1947.

Hornet was later modernized and saw further service before returning to the reserve fleet in 1970. She was sold for scrap in 1993, but the scrapping contract was cancelled in 1996 and efforts to preserve her as a museum ship in Alameda, California are underway.

U.S.S. FRANKLIN (CV-13)

Commissioned in January of 1944, the Franklin first saw action with TG 58.2 supporting the landings on Eniwetok. She subsequently took part in operations off the Bonins, the Marianas, the Palaus, and the Philippines, as well as participating in strikes on Formosa and Japan itself. In October of 1944 Franklin was hit by a bomb, resulting in 56 dead. On 19 March 1945 Franklin was operating off Okinawa when she was hit by two bombs. She suffered the most severe damage of any *Essex* class ship, including 724 crewmembers killed and 265 wounded. Franklin was decommissioned in 1947 and stricken in 1964 without ever reentering service.

U.S.S. TICONDEROGA (CV-14)

The second 'long hull' unit, *Ticonderoga* was commissioned in May of 1944, and saw her first action supporting landings in the Philippines. In January 1945 the she was damaged by a kamikaze, but returned to support operations off Okinawa and Japan. After participating in Magic Carpet operations *Ticonderoga* was placed in reserve in 1947. *Ticonderoga* was modernized and saw further service before being stricken in 1973.

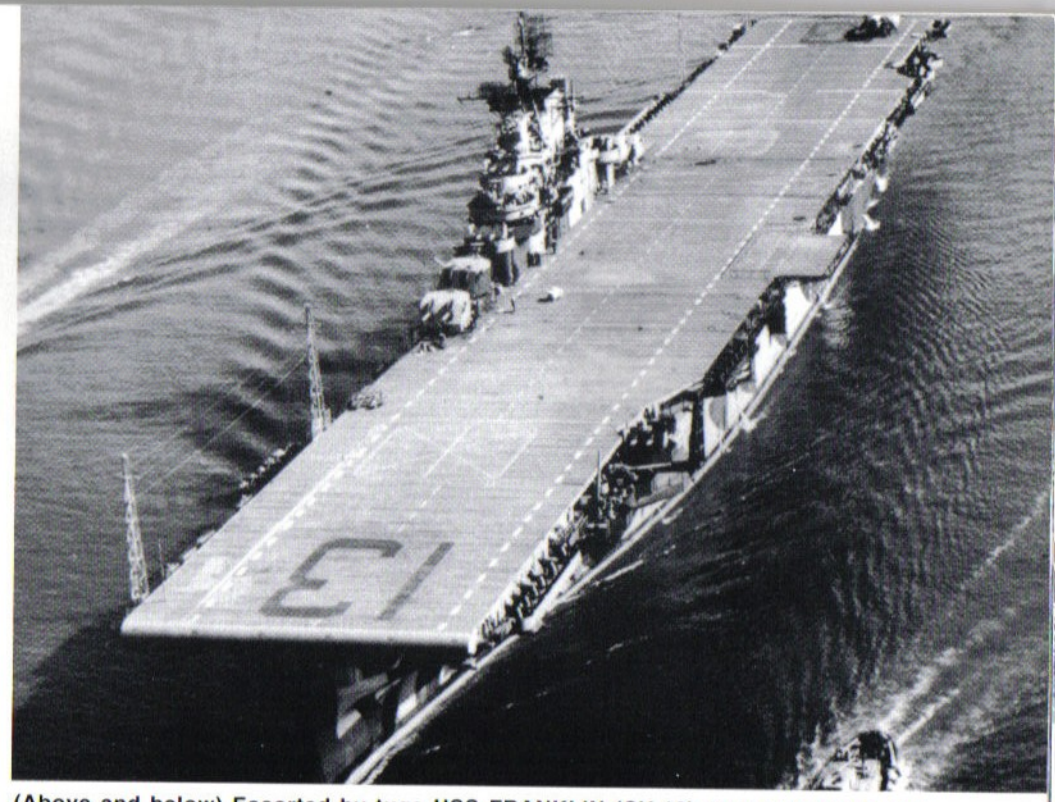
U.S.S. RANDOLPH (CV-15)

Commissioned in September of 1944, the *Randolph* first joined the Pacific Fleet in January of 1945 for operations off Okinawa and Japan, and was hit by a kamikaze in March of 1945 while at anchor at Ulithi. *Randolph* was placed in the reserve in 1948, and after modernization and further service, was scrapped in 1973.

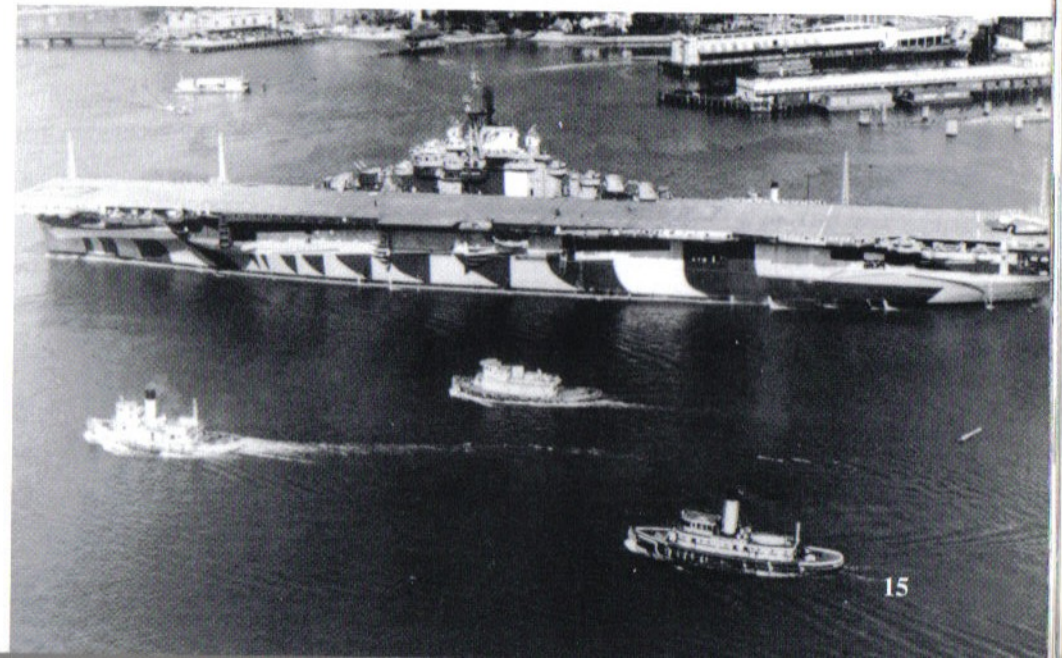
U.S.S. LEXINGTON (CV-16)

The second *Essex* to be commissioned, *Lexington* arrived at Pearl Harbor on 9 August 1943, and first saw action in the raid on *Tarawa* Atoll on 11 September 1943. She also participated in the raids on Wake Island later that month, and supported the landings in the Gilberts and the Marshalls, suffering damage from a torpedo on 4 December, 1943. In February of 1944 *Lexington* returned to action, striking at Mille and Truk, and supporting landings at Hollandia, New Guinea. *Lexington* also participated in strikes at Truk, the Marianas, the Palaus, the Bonins, Yap, and the Philippines. After being hit by a kamikaze on 5 November 1944, *Lexington* spent 1945 conducting operations off Formosa, Luzon, Indo-China, Japan, and the Bonins.

Lexington was placed in reserve in 1947, and after modernization served until 1991, most of that time as the Navy's training carrier in Pensacola, Florida. She now serves as a museum ship in Corpus Christi, Texas.



(Above and below) Escorted by tugs USS FRANKLIN (CV-13) steams through the Elizabeth River off Norfolk on 21 February 1944. The FRANKLIN would be the most heavily damaged ESSEX class carrier, but in attack after attack the Japanese failed to sink her. FRANKLIN sailed home under her own power, but would never re-enter service. (80-224596; 80-G-224597)



U.S.S. BUNKER HILL (CV-17)

The *Bunker Hill* was commissioned in May of 1943 and participated in operations at Rabaul, the Gilberts, *Tarawa*, and Kavieng in 1943. In 1944 she supported operations at the Marshalls, Truk, the Marianas, Palau, Yap, Hollandia, the Carolines, the Philippines, Okinawa, and Formosa. In 1945 she supported operations off Iwo Jima, Japan, and Okinawa until being severely damaged by two kamikazes on 11 May 1945, resulting in 346 dead. Although repaired, she saw no further action, and after use as a troop transport in 1945, she was withdrawn from service in 1947 and used as a floating electronic laboratory until being scrapped in 1973.

U.S.S. WASP (CV-18)

Named for the U.S.S. *Wasp*(CV-7) which had been sunk off Guadalcanal in September 1942, CV-18 was commissioned in November of 1943, and first saw action against the Japanese in raids against Marcus and Wake Islands in May of 1944. She then participated in operations off New Guinea, the Marianas, the Philippines, Okinawa, Japan and Formosa before the end of the war. She participated in "Magic Carpet" operations, and in 1947 was placed in reserve. After modernization and further service she was scrapped in 1972.

U.S.S. HANCOCK (CV-19)

Hancock was the first of the 'long hull' *Essex* class carriers to be completed, being commissioning in April of 1944. *Hancock* first saw action with the Third Fleet in attacks on Formosa, the Philippines, Okinawa, and Japan. In 1945 the carrier took part in attacks on Indo-China, Okinawa, the Bonin Islands, and Japan itself. Damaged in an aircraft explosion in January 1945 and again by a kamikaze strike in April, *Hancock* returned to take part in "Magic Carpet" operations. She was withdrawn from service in 1947, and after modernization and further service, was scrapped in 1976.

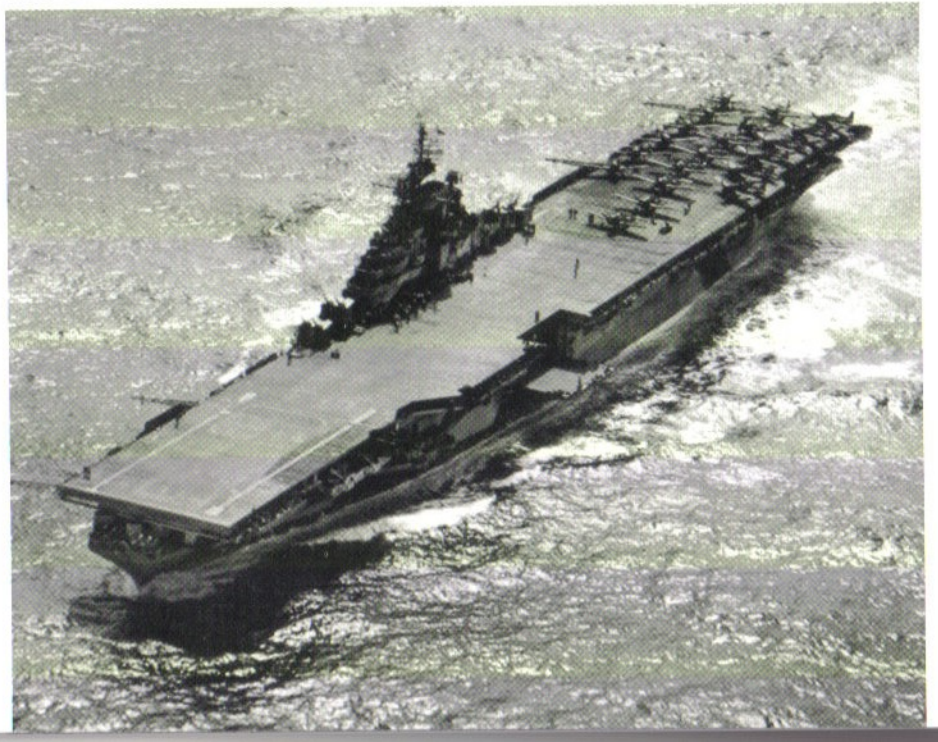
U.S.S. BENNINGTON (CV-20)

Bennington was commissioned in of August 1944, the first of two *Essex* class ships assigned to the New York Navy Yard. She saw action against the Japanese islands, the Vulcan Islands, and Okinawa before taking part in the occupation of Japan following the war. She was withdrawn from service in late 1946, and after rebuilding and further service, returned to the reserve fleet in 1970. She was one of the last *Essex* class carriers to survive in the reserves, finally being scrapped in 1994-1995.

U.S.S. BOXER (CV-21)

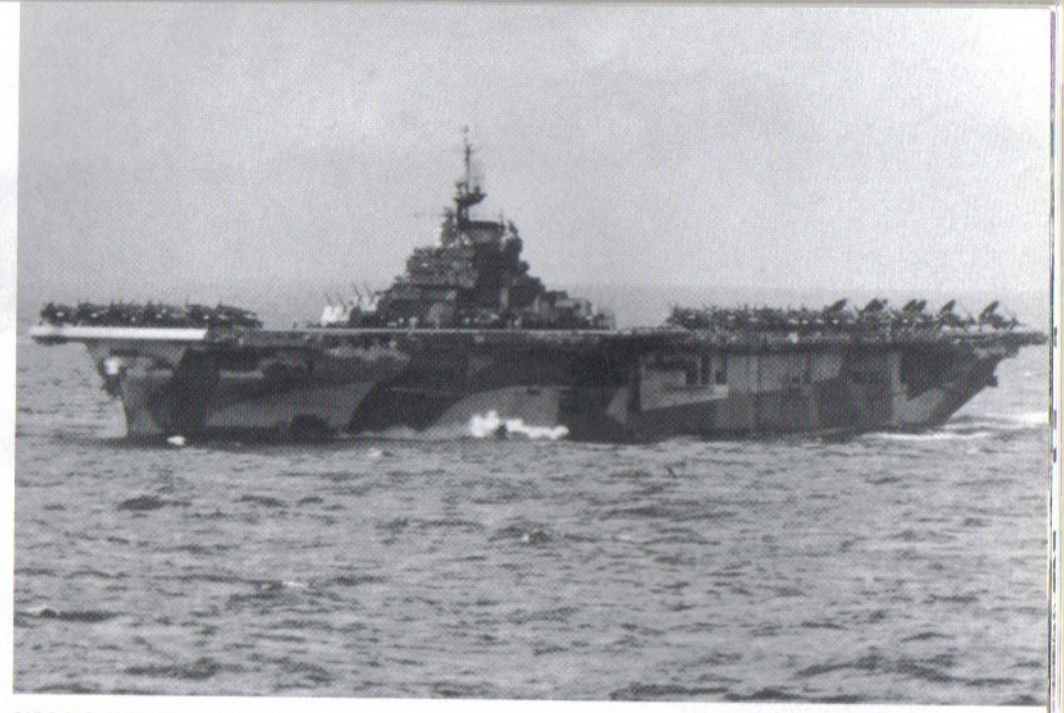
Commissioned in April 1945, the *Boxer* was the first *Essex* class carrier completed too late to take part in the war against Japan. She was one of the few carriers to remain in commission after the war, and served continuously until 1969, her last ten years as an amphibious assault ship. *Boxer* was scrapped shortly after her decommissioning.

With her flight deck radio masts lowered the USS HANCOCK (CV-19) recovers an F6F Hellcat in 1944. Flight deck radio masts are always lowered during flight operations. (80-G-K-1929-A)



USS HANCOCK (CV-19) prepares to launch a strike in late 1944. The HANCOCK and the TICONDEROGA were the only two carriers built with the port side flight deck cutout for installation of a third Mark 37 gun fire director, which was never fitted.. (80-G-294456)

USS HORNET (CV-12) slowly moves out of Pearl Harbor 22 March 1944. (80-G-K-6979)



USS HORNET (CV-12) off Okinawa on 27 March 1945. (NH 96121-KN)

USS BULLARD (DD-660) steams past an Essex class carrier prior to operations at Okinawa in 1945. (80-G-K-3815)

(Above) USS TICONDEROGA (CV-14) her deck loaded with Hellcats, Avengers and Helldivers just before carrying out her first strike against the Japanese on 5 November 1944. (NH 92243)

(Below) USS ESSEX (CV-9) at anchor in Majuro Atoll 2 March 1944. Task Force 58's use of forward bases such as Majuro and Ulithi allowed it to eliminate the long, fuel and time-consuming returns to Pearl Harbor after each campaign. (80-G-300874)

U.S.S. BON HOMME RICHARD (CV-31)

Commissioned in November of 1944, *Bon Homme Richard* first saw action off Okinawa in March of 1945. She took part in the Japanese occupation after the war, as well as "Magic Carpet" operations. Placed in the reserve in 1947, she was later modernized and served until 1971. She remained in the reserve fleet until being sold for scrap in 1992.

U.S.S. LEYTE (CV-32)

Completed well after the war, in April of 1946, *Leyte* remained in service until 1959. She was scrapped in 1969.

U.S.S. KEARSARGE (CV-33)

The *Kearsarge* was completed in March of 1946, and remained in service until 1950. After being modernized and seeing additional service she returned to the reserve fleet and was scrapped in 1973.

U.S.S. ORISKANY (CV-34)

Construction was suspended on *Oriskany* in August of 1946 at 85 percent complete, but unlike two of her sisters CV-34 survived to be completed in 1950 to the new SCB-27A configuration, making her the prototype for the postwar modifications to the *Essex* class. *Oriskany* underwent further modernizations and remained in commission until 1976, when she was placed in the reserve fleet. She was sold for scrap in 1996.

U.S.S. REPRISAL (CV-35)

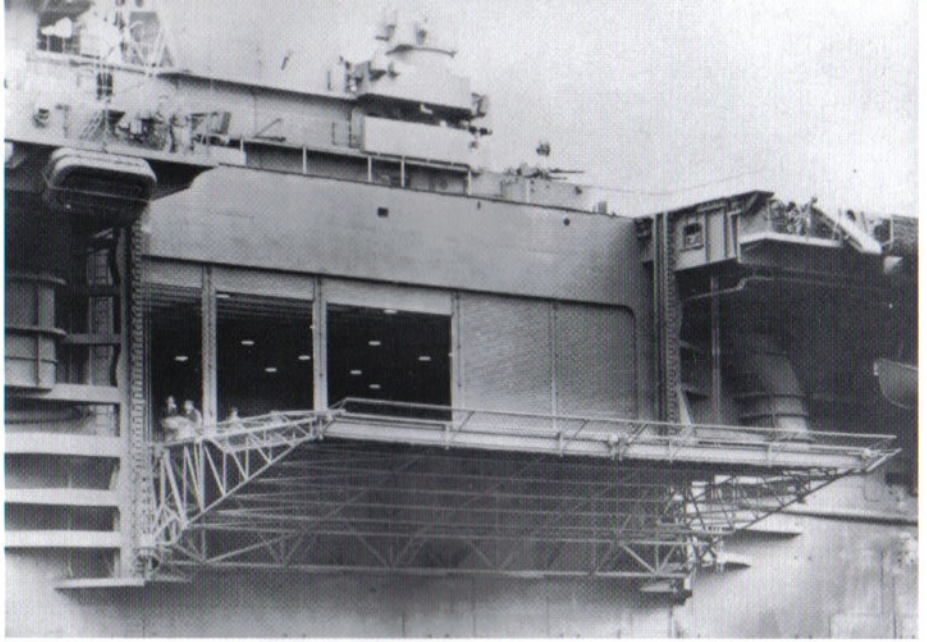
Reprisal was laid down in July of 1944, but construction was suspended on her still-incomplete hull on 11 August 1945. After being used for testing the effects of explosives from 1946 to 1948 her hull was broken up for scrap in 1949.

U.S.S. ANTIETAM (CV-36)

Commissioned on 28 January 1945, *Antietam* did not reach the war zone in time to see action. She remained in service until 1949 when she was placed in the reserve fleet. She was recommissioned in 1951 for service off Korea, and had the Navy's first test angled flight deck installed in 1952. *Antietam* was decommissioned in 1963, and was scrapped in 1973.

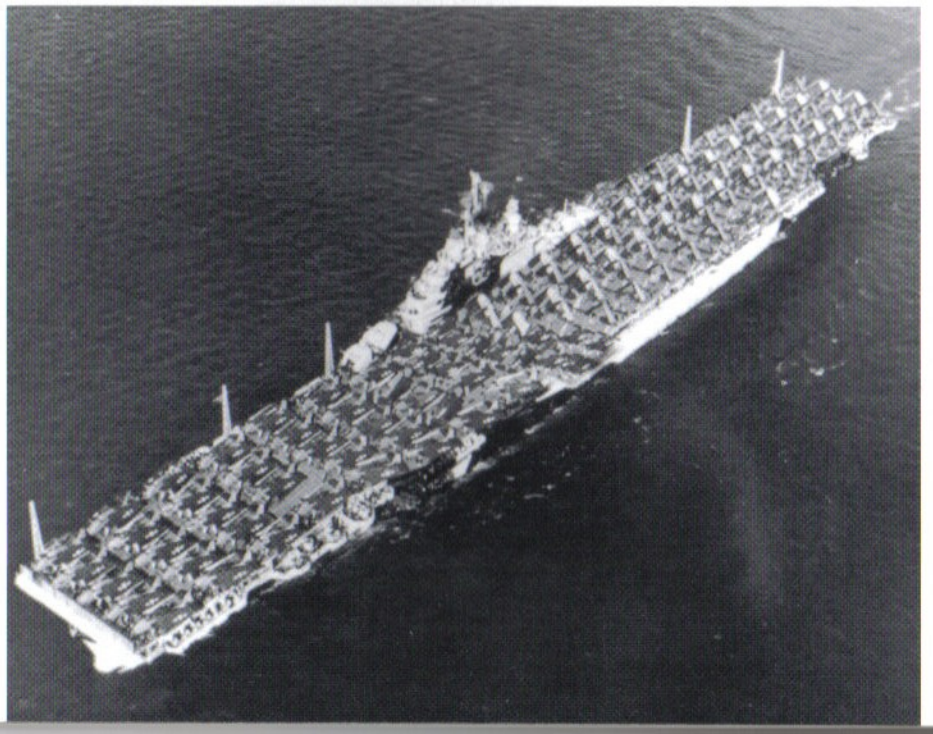
U.S.S. PRINCETON (CV-37)

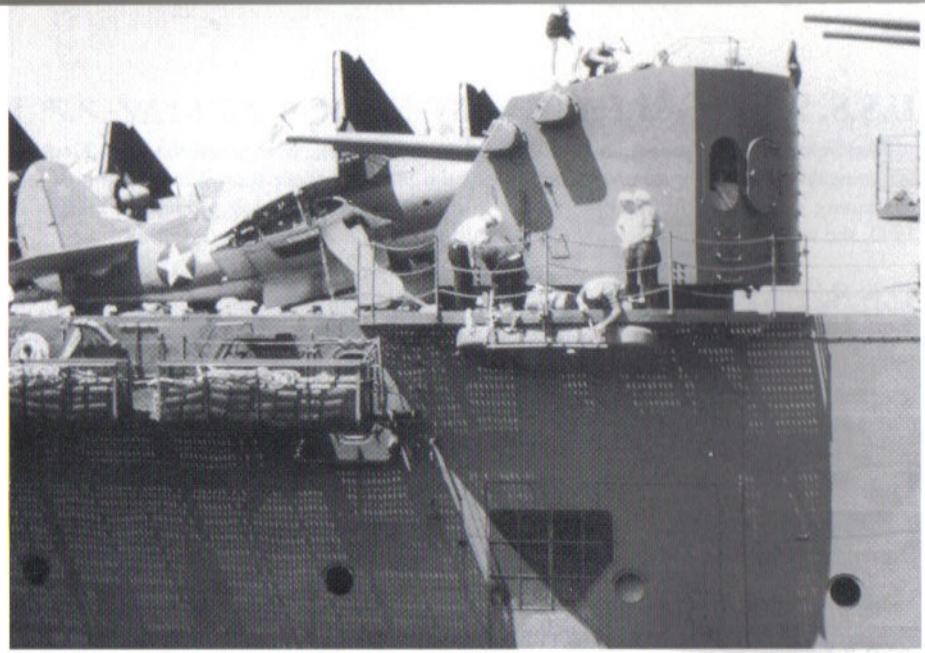
Commisioned in November of 1945, *Princeton* served four years before entering the reserve. She was brought back into commission quickly for action in Korea, and remained in service thereafter until her decommissioning and subsequent scrapping in 1970.



This close up of the USS LEYTE (CV-32) taken 4 April 1946 shows the deck-edge elevator that would become a prominent feature of all later U.S. aircraft carriers. Also shown are the vertical outboard vents on either side of the elevator, which sectioned the long internal vent trunk system installed on the earlier ships of the class.

USS ESSEX (CV-9) in May of 1944, with its deck literally awash in aircraft transports them to the war zone as the fleet builds up its aircraft stocks prior to the invasion of the Marianas in June. (80-G-373580)

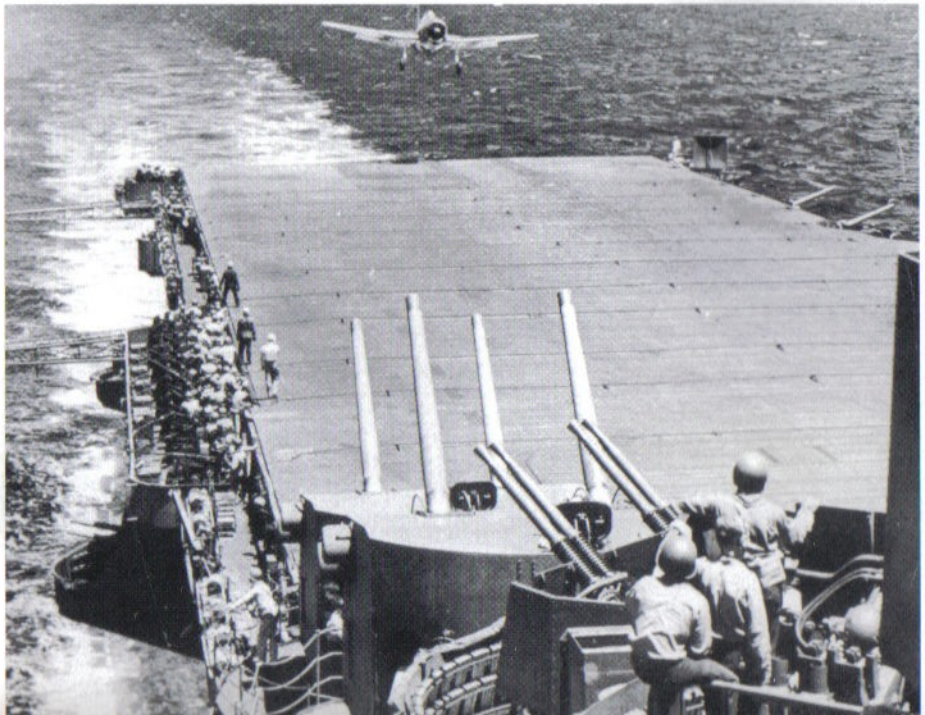


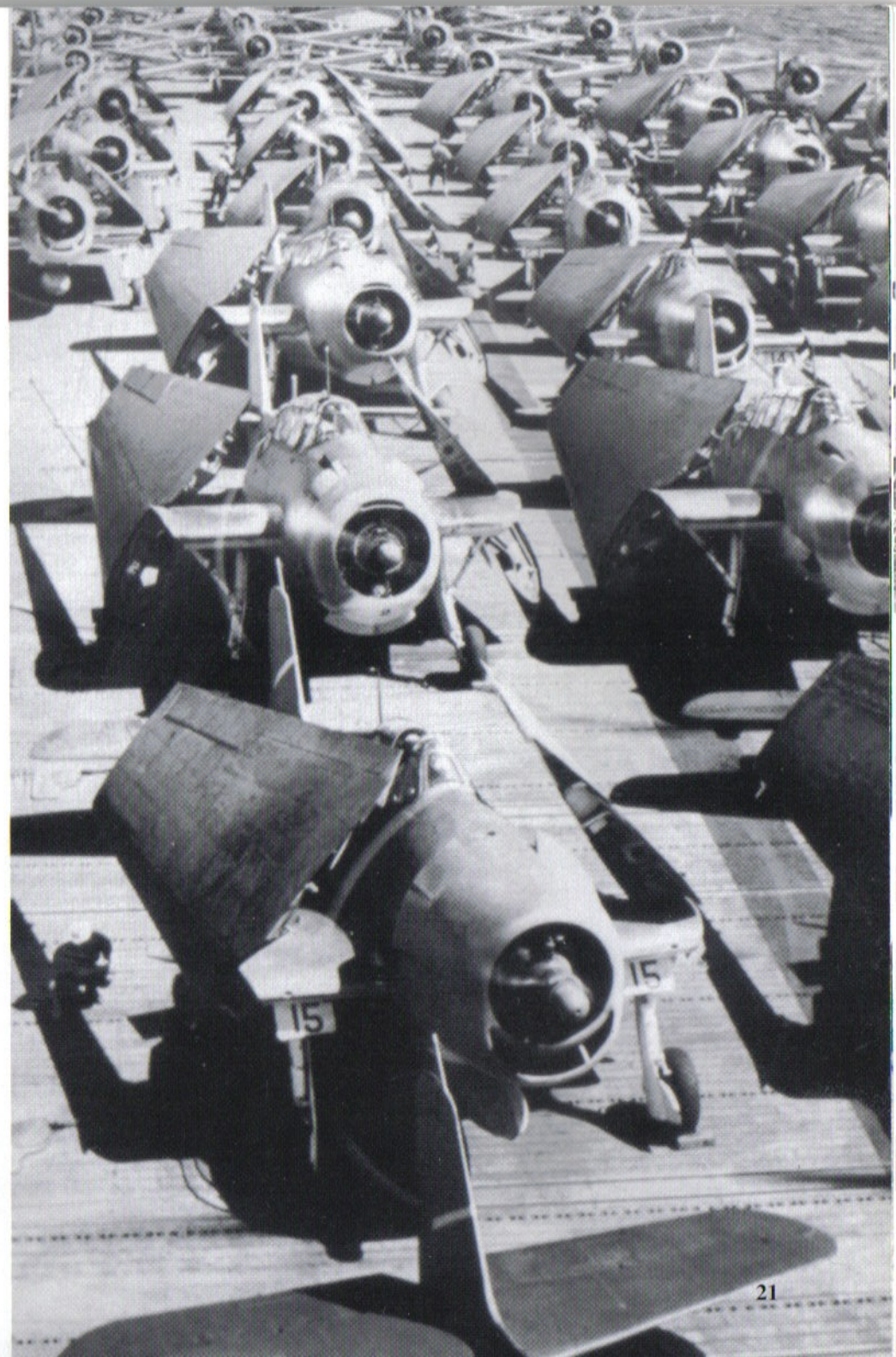


Crewmen work on life raft and floater net storage on the USS YORKTOWN (CV-10) in May 1943. The deck in the background is crowded with Helldivers. (80-G-K-15824)

(Right) USS YORKTOWN her deck crowded with F6F Hellcat fighters and SBD Dauntless dive bombers in November/December 1943 during the Marshalls/Gilberts operations. (80-G-K-15092)

An F6F Hellcat lands on USS LEXINGTON (CV-16) during the Marianas Turkey Shoot 19 June 1944. (80-G-236955)





U.S.S. SHANGRI LA (CV-38)

The *Shangri La* was commissioned in September of 1944. She joined the Fifth Fleet for action against the Bonins, Okinawa, Japan, and the Japanese occupation. *Shangri La* took part in training cruises and in the 1946 atomic bomb tests at Bikini Atoll. Placed in reserve in 1947, she was later modernized and served until 1971. She was scrapped in 1988.

U.S.S. LAKE CHAMPLAIN (CV-39)

Commissioned too late to see action in World War II, *Lake Champlain* spent the fall of 1945 setting a speed record as part of 'Magic Carpet' operations. She was placed in reserve less than two years after entering service, but was later modernized and was scrapped in 1973 after additional service through 1966.

U.S.S. TARAWA (CV-40)

Tarawa entered service in December of 1945. She was placed in the reserve fleet in 1949 and after seeing additional service was decommissioned in 1960 and sold for scrap in 1967.

A crew member plots the location of aircraft on the flight and hangar deck planning board of an Essex class carrier in response to telephoned instructions of air officers. (80-G-K-5395)

(Below) USS SHANGRI LA (CV-38) on 15 December 1944 near Trinidad. The camouflage paint just above the water line has taken a bit of a beating, with large patches having chipped way (80-G-188156)

U.S.S. VALLEY FORGE (CV-45)

Valley Forge was placed in service in late 1946 and served continuously until 1970, when she was taken out of commission as a helicopter carrier, after having served 24 years in an unmodernized condition.

U.S.S. IWO JIMA (CV-46)

Work was suspended on CV-46 on 15 August 1945. The incomplete hull was broken up for scrap on the builder's slip.

U.S.S. PHILIPPINE SEA (CV-47)

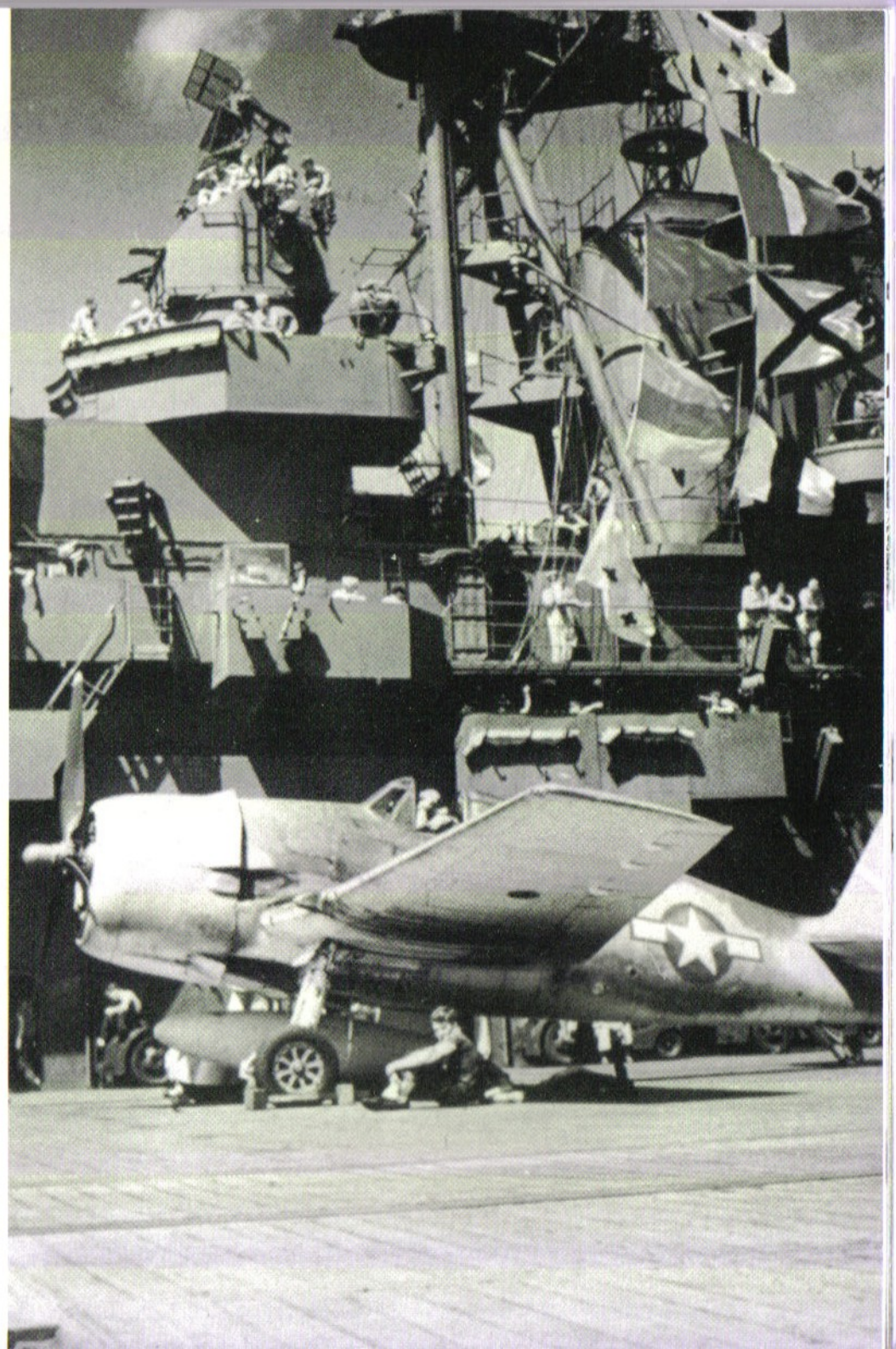
Completed in May 1946, *Philippine Sea* served until 1958, and was scrapped in 1969.

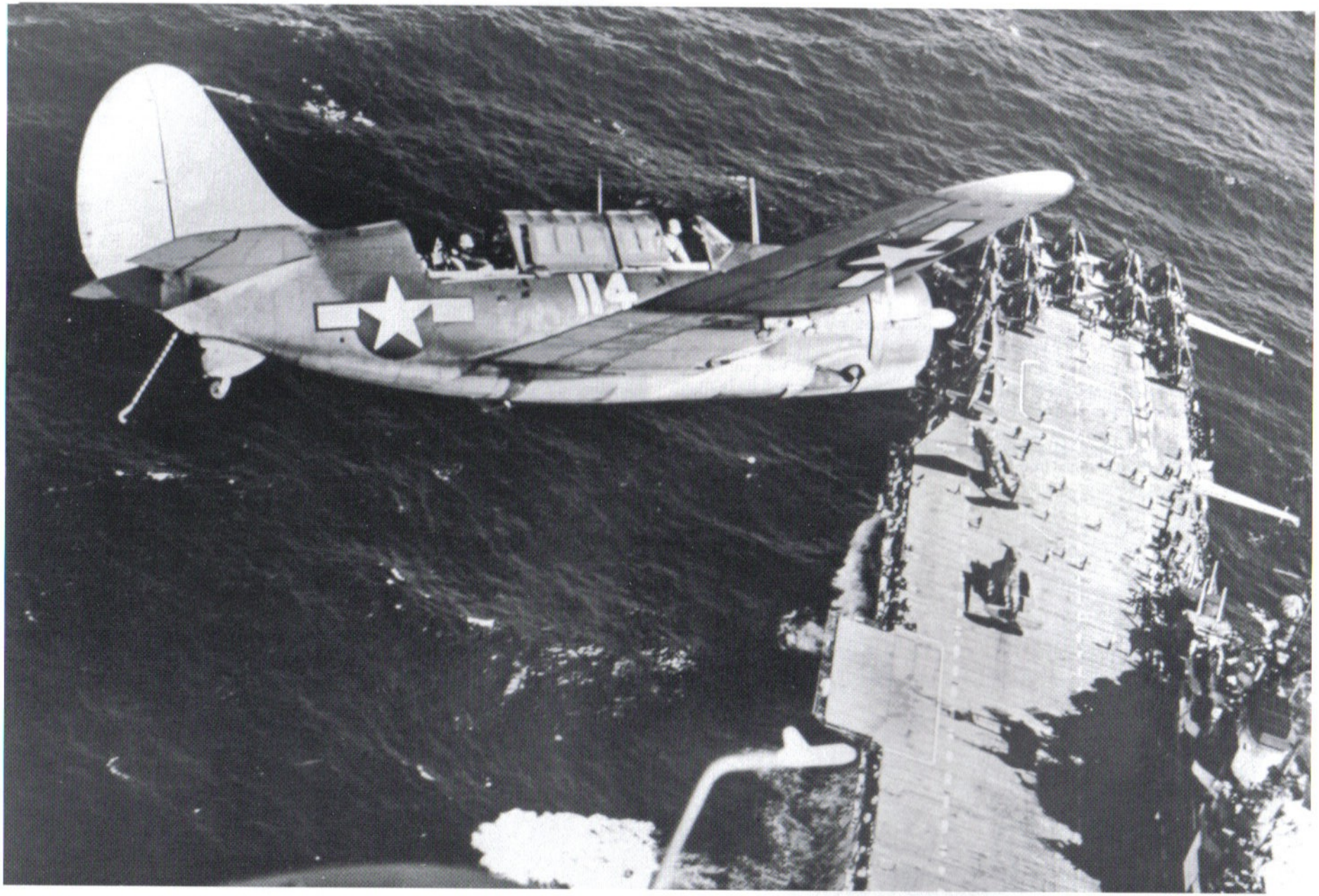
CV 50-55

Authorized in fiscal year 1944, these six carriers were to complete the Essex class. President Roosevelt personally cancelled their construction on 27 March 1945.

(Right) Combat Air Patrol (CAP) F6F-3 Hellcats sit on the flight deck of the USS YORK-TOWN (CV-10) awaiting orders to take in late 1943. (80-G-K-16166)

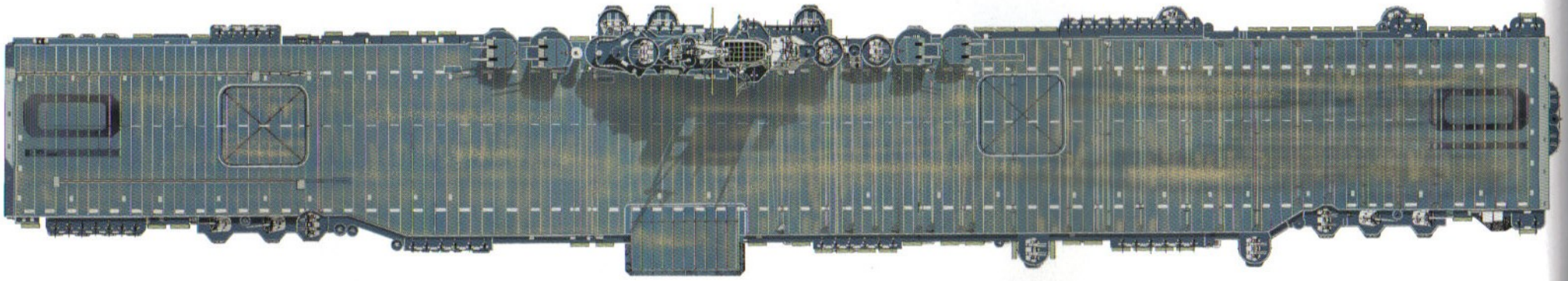
An Essex class carrier (either TICONDEROGA, RANDOLPH or SHANGRI-LA) and the Battleship USS IOWA (BB-61) refuel from the oiler USS CAHABA (AO-82). (80-G-K-6112)



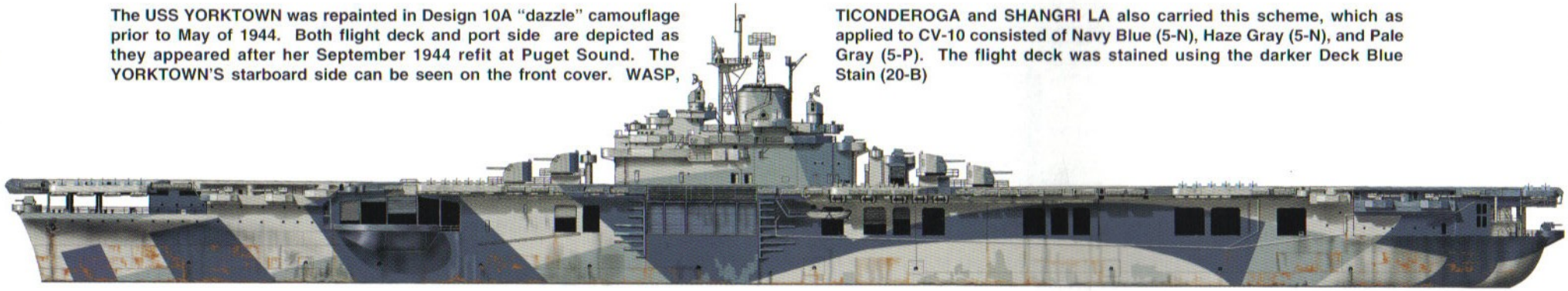


Following strikes on Japanese shipping in the China Sea in January 1945 a Curtiss SB2C-3 Helldiver dive bomber banks over the USS HORNET (CV-12) before landing. The Helldiver, the replacement for the SBD Dauntless carries the three tone color scheme that was used in the Pacific during mid war. Already recovered Helldiver are being moved forward on the carrier deck to accommodate landing operations. For recovery operations the deck-edge radio antennas are in the down position. (80-G-469319)

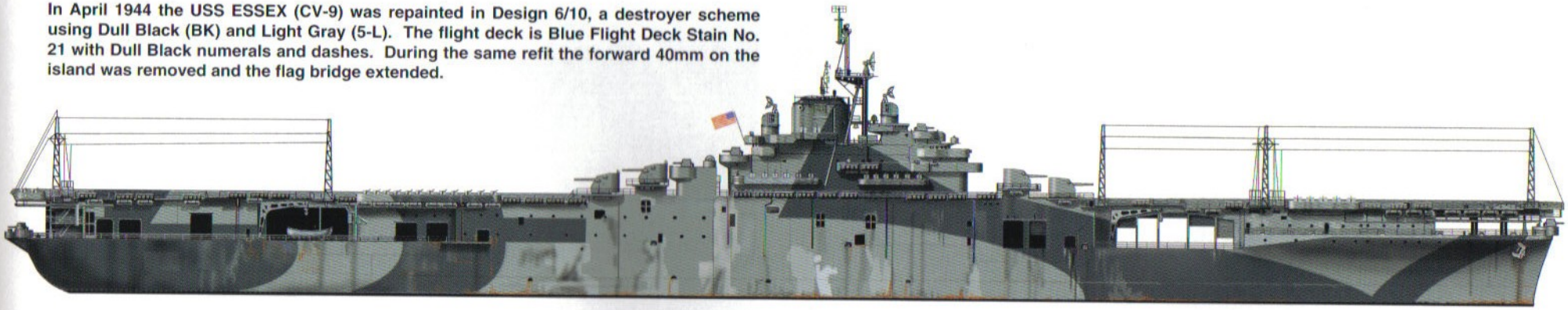
Commissioned on the last day of 1942, the USS ESSEX (CV-9) first saw action in 1943 carrying Measure 21 overall Navy Blue (5-N).



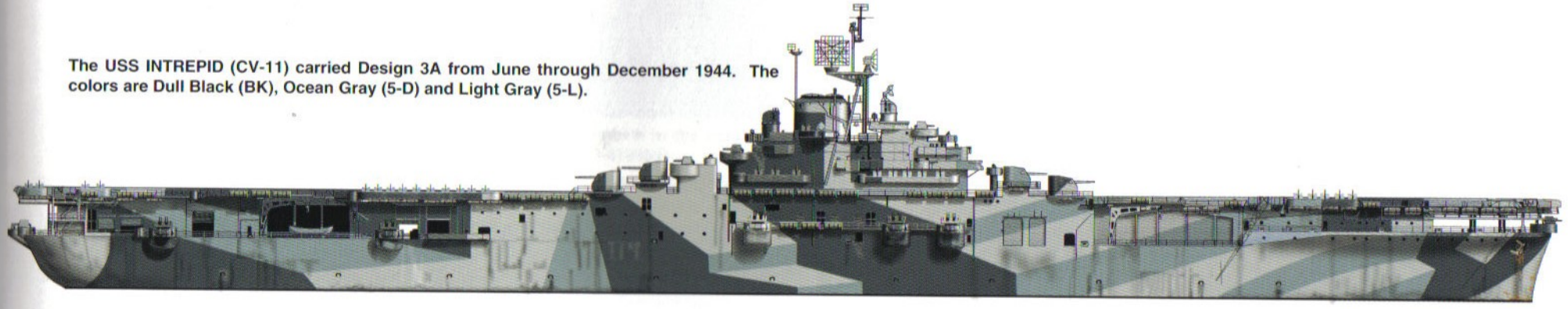
The USS YORKTOWN was repainted in Design 10A "dazzle" camouflage prior to May of 1944. Both flight deck and port side are depicted as they appeared after her September 1944 refit at Puget Sound. The YORKTOWN'S starboard side can be seen on the front cover. WASP, TICONDEROGA and SHANGRI LA also carried this scheme, which as applied to CV-10 consisted of Navy Blue (5-N), Haze Gray (5-N), and Pale Gray (5-P). The flight deck was stained using the darker Deck Blue Stain (20-B)



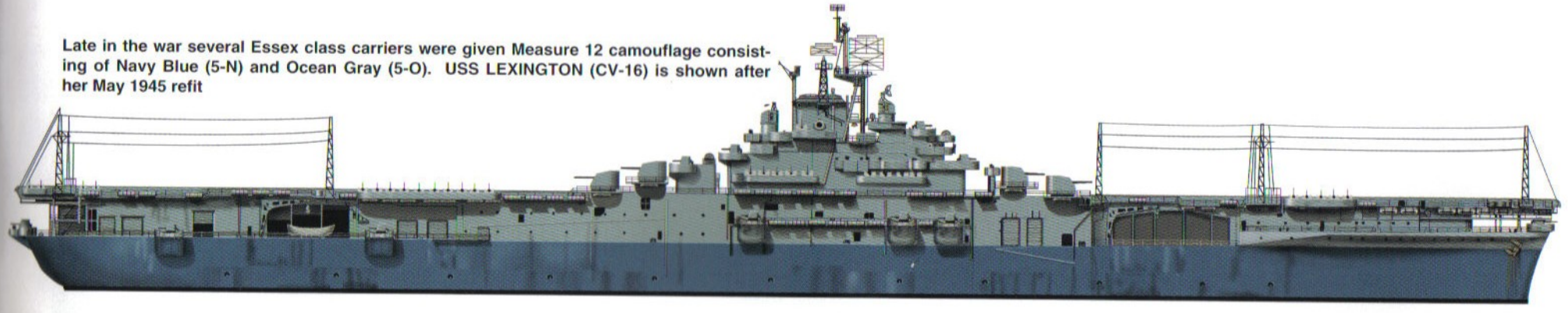
In April 1944 the USS ESSEX (CV-9) was repainted in Design 6/10, a destroyer scheme using Dull Black (BK) and Light Gray (5-L). The flight deck is Blue Flight Deck Stain No. 21 with Dull Black numerals and dashes. During the same refit the forward 40mm on the island was removed and the flag bridge extended.

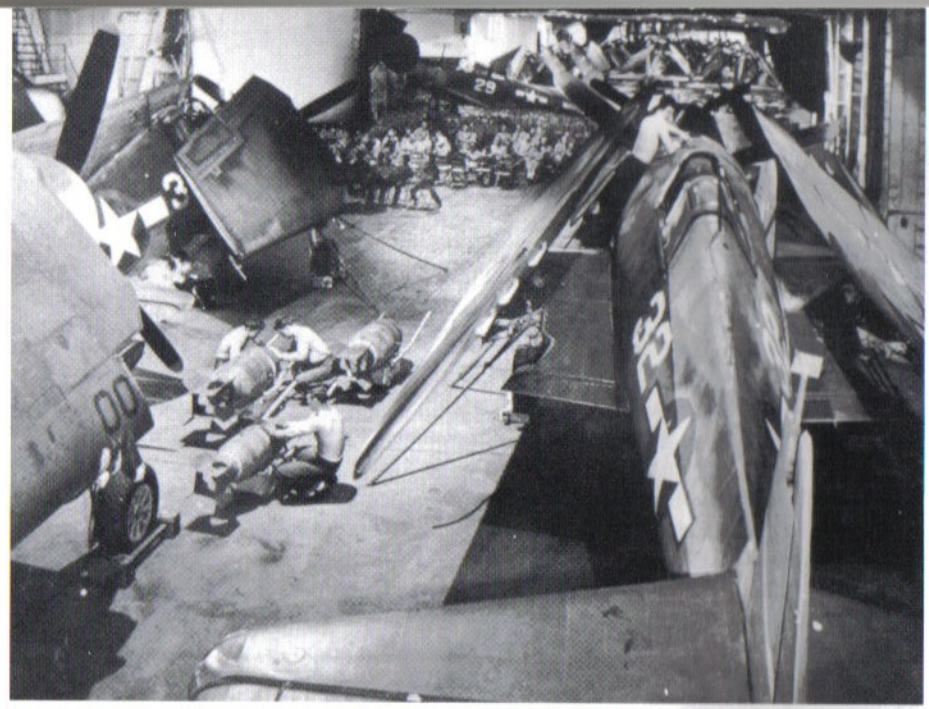


The USS INTREPID (CV-11) carried Design 3A from June through December 1944. The colors are Dull Black (BK), Ocean Gray (5-D) and Light Gray (5-L).

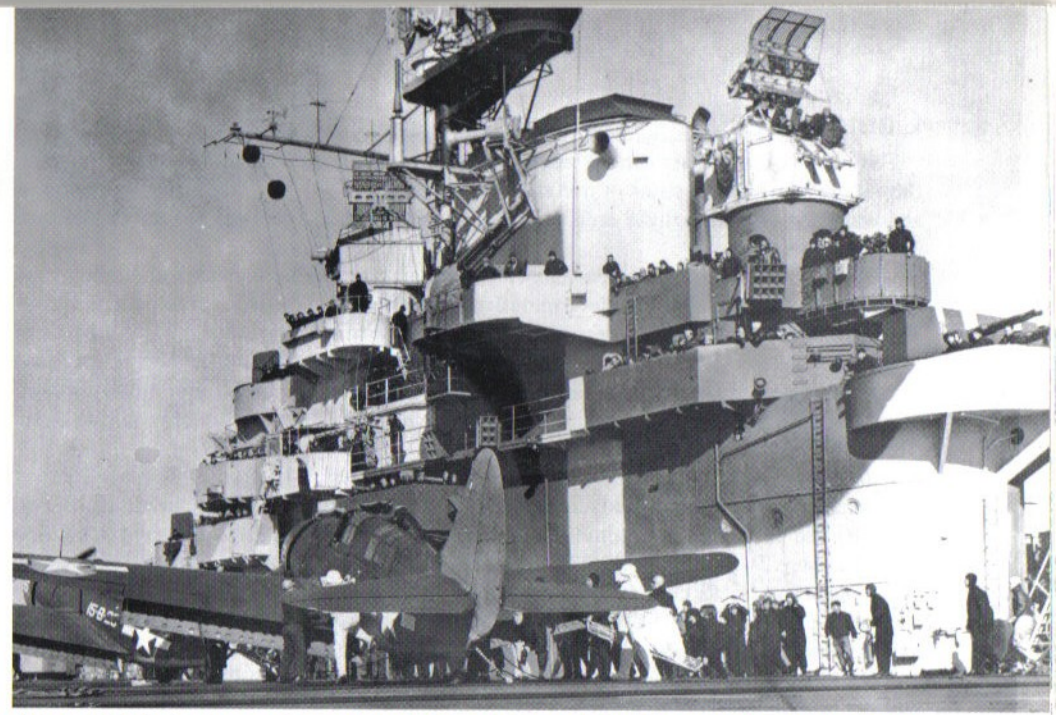


Late in the war several Essex class carriers were given Measure 12 camouflage consisting of Navy Blue (5-N) and Ocean Gray (5-O). USS LEXINGTON (CV-16) is shown after her May 1945 refit





(Above) Crewmembers on the USS YORKTOWN (CV-10) watch a movie in the crowded hangar deck, while other crewmembers check over ordnance. (80-G-419959)



(Above) Flight deck operations on the USS HORNET (CV-12) in July of 1944. The stretcher in the hands of one of the deck hands may mean that this Helldiver has returned with a badly wounded aircrewman.

(Above) USS LEXINGTON (CV-16) in Measure 12 camouflage on 21 May 1945. The Lex was the only Essex carrier built during the war to never be painted in the 'dazzle' pattern.

Camouflage

The first six *Essex* class carriers entered service in the then-prevalent Measure 21 camouflage scheme, which consisted of overall Navy Blue paint (5-N) with Deck Blue (20-B) decks and walkways and Blue flight deck stain No. 21, with Black flight deck stripes, dashes, and later, numerals.

Beginning with the *Hornet* in November 1943, many carriers were either commissioned in, or painted over in the new 'dazzle' camouflage Measures 31, 32 and 33. The pattern of dark and light patches was intended primarily as an anti-submarine camouflage. While the pattern resulted in higher visibility, and thus earlier sighting by enemy units, the benefits of disguised ship type, course and speed were thought to outweigh the disadvantages. Eventually fourteen of the *Essex* class ships were repainted in dazzle, with the *Lexington* the only ship to never carry such a scheme.

With the advent of the organized kamikaze attacks in late 1944, Measure 21 made a strong comeback as carriers, and indeed all vessels sought to reduce their visibility to aerial observation. By the end of the war, almost all of the carriers in the Pacific had been painted into either Measure 21 or Measure 12/22, which consisted of Navy Blue virtical surfaces up to the hangar deck and Ocean Gray or Haze Gray above that.

All of the Blue and Gray paints used in ship camouflage in 1943-1945 were made by adding varying amounts of Blue/Black tint to White paint. Since Blue pigments faded quickly when exposed to sunlight, the darker colors faded quickly in service, to say nothing of the effects of weathering and exposure to salt water. The following camouflage patterns were used by the U.S. Navy in World War II. No *Essex* class carrier carried Measures 1, 5, 11, 12 (original), or 12 Modified.

Measure 1 - Dark Gray System (January 1941): Dark Gray (5-D) on all vertical surfaces up to the level of the funnel tops, Light Gray (5-L) on all higher vertical surfaces.

Measure 5 - Painted Bow Wave (January 1941): upper edge of false wave in white, filled in with Dark Gray (5-D).

Measure 11 - Sea Blue System (September 1941): Sea Blue (5-S) on all vertical surfaces.

Measure 12 - Graded System (September 1941): Sea Blue (5-S) up to level of main deck, Ocean Gray (5-O) up to level of top of superstructure, Haze Gray (5-H) above. Note: this designation was also used in 1945 with Navy Blue (5-N) replacing Sea Blue (5-S)

Measure 12 - Mod. - Graded System (Modified): Sea Blue (5-S), Ocean Gray (5-O), Haze Gray (5-H) as above, but with wavy edge and splotching for a more blended effect.

Measure 21 - Navy Blue System (June 1942): Navy Blue (5-N) on all vertical surfaces.

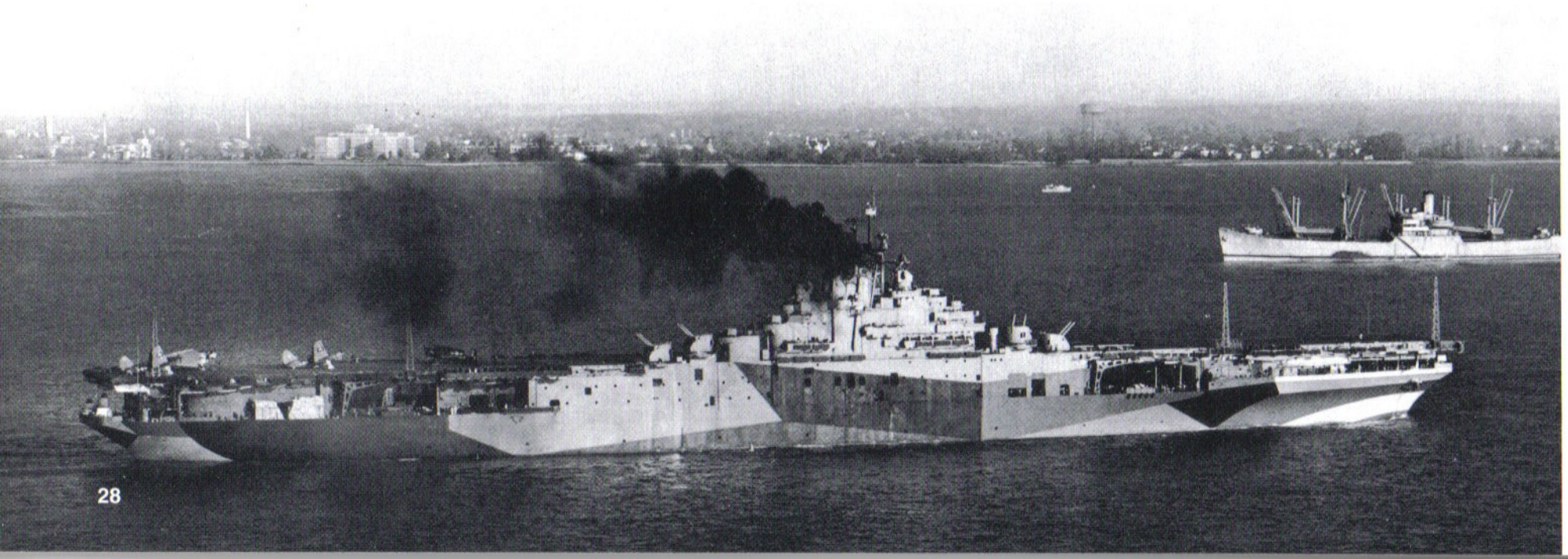
Measure 22 - Graded System (June 1942): Navy Blue (5-N) up to level of lowest point of main deck, upper edge horizontal, remaining vertical surfaces Haze Gray (5-H).

Measure 31 - Dark Pattern System (March 1943): disruptive pattern generally employing Dull Black (BK), Ocean Gray (5-O), and Haze Gray (5-H). Note: Measure 31a substituted Navy Blue (5-N) for Dull Black (BK).

Measure 32 - Medium Pattern System (March 1943): disruptive pattern generally employing Dull Black (BK), Ocean Gray (5-O) and Light Gray (5-L)

Measure 33 - Light Pattern System (March 1943): disruptive pattern generally employing Navy Blue (5-N), Haze Gray (5-H), and Pale Gray (5-P)

USS RANDOLPH (CV-15) on 5 November 1944, one month after commissioning. She is painted in Measure 32/17A-1, the only six-color camouflage design in the U.S. Navy. (80-G-289865)



Armament and Fire Control

The *Essex* class' armament at commissioning consisted of a main battery of five inch/38 caliber DP (Double Purpose) (surface and air defense) guns, and an antiaircraft battery of quadruple mount 40mm Bofors heavy machine guns, and 20mm Oerlikon light machine guns.

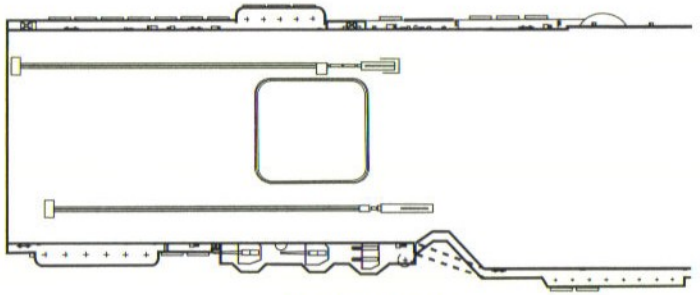
The absence of treaty restrictions on the *Essex* class meant that the Navy could have returned to the 8 inch guns carried by the *Lexington* class carriers, but the reality of carrier operations was that such weapons fired across a flight deck would cause extensive blast damage, especially on the lighter *Essex* class flight decks. The 5" main armament of the *Yorktown* class was therefore retained, with eight barrels carried in four of the new twin turrets mounted fore and aft of the island. Four additional five inch single open mounts were placed in pairs on the port side of the flight deck, similar to the placement in the *Yorktown* class.

The 40mm and 20mm weapons replaced the quadruple 1.1 inch weapons and .50 caliber Browning automatic machine guns carried by the *Yorktown* class. The 1.1 inch weapon tended to jam once heated up, and the .50 caliber rounds had simply become too light to bring down the attackers the ships were now facing. The new 20mm weapon had acquired considerable prestige as a result of use by the British, and was substituted in greater numbers than the original .50 caliber weapons.

Wartime modifications to the *Essex* class armament consisted primarily of the constant increase in the number of antiaircraft weapons. The *Intrepid*, for example, was commissioned with eight 40mm quads and forty-six 20mm singles, but finished the war with 17 and 61, respectively. Many ships received two more 40mm mounts on the port catapult sponson, as well as two on the gallery deck, three on the starboard side beneath the island, and two more on the starboard side aft. All of these mounts were removable to allow passage through the Panama Canal. A second 40mm was added to the stern of most ships, and the 'long hull' ships commissioned with a second 40mm crowded onto a reshaped bow. By 1945 the 20mm single was being gradually replaced by twin 20mm mounts and on *Wasp* and *Lexington*, Army .50 caliber quadruple mount machine guns. While sufficient to damage a plane or deter strafing after an attacker had dropped its bombs, the 20mm was not capable of the complete disintegration of the target that the kamikaze menace demanded. After the end of the war, there was little need for the heavy antiaircraft armament, and the carriers landed much of their light armament, replacing them with the ship's boats needed for peacetime operations.

Fire from the five inch battery was controlled by two Mark 37 directors on the island. These directors initially carried a Mk 4 radar antenna, which was later replaced on many ships with Mk 12/22 radars. During 1943 plans to install a third Mark 37 director on the port side hangar deck catapult sponson required a large cut-out in the flight deck, and the obstruction of a large radar antenna at flight deck level. The plans were later dropped, but two ships, the *Ticonderoga* and the *Hancock* were completed with the cut-outs. Both were removed in wartime refits.

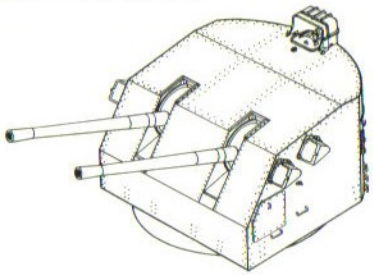
The 40mm mounts were controlled by Mk 49 directors, which were aided by Mk 11 or Mk 19 radars. This system proved unsatisfactory, and the directors were replaced with Mk 51 radars with Mk 14 gunsights. The 20mm battery was manually directed, although Mk 14 gunsights were also mounted occasionally.



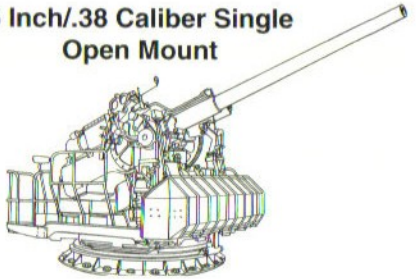
Deck cut outs

ARMAMENT

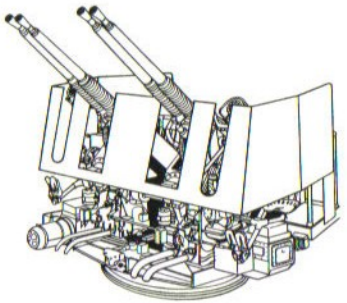
5 inch Twin Turret

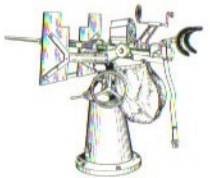


5 Inch/.38 Caliber Single Open Mount

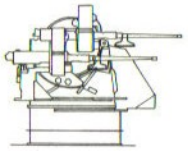


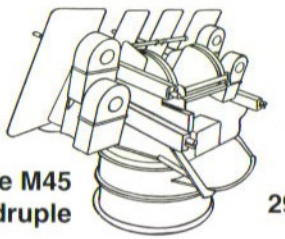
Quadruple 40MM Bofors





Single 20mm Oerlikon



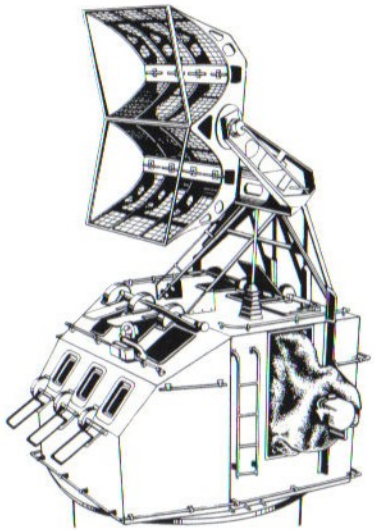


Army type M45 0.5 Quadruple

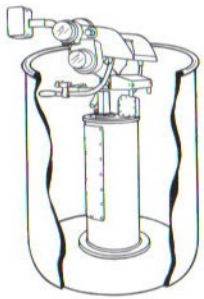
Crew members on the USS HORNET (CV-12) fire a 40mm quad Bofors during Task Force 58's raid on Japan 16 February 1945. (80-G-413915)

USS HANCOCK (CV-19) on 7 July 1944. Shortening the flight deck expanded the bow area permitting the mounting of a second 40mm quad adding protection against airborne attacks to the bow. Also visible are the two Mk 51 directors that controlled the 40mm mounts.

Fire Control Directors

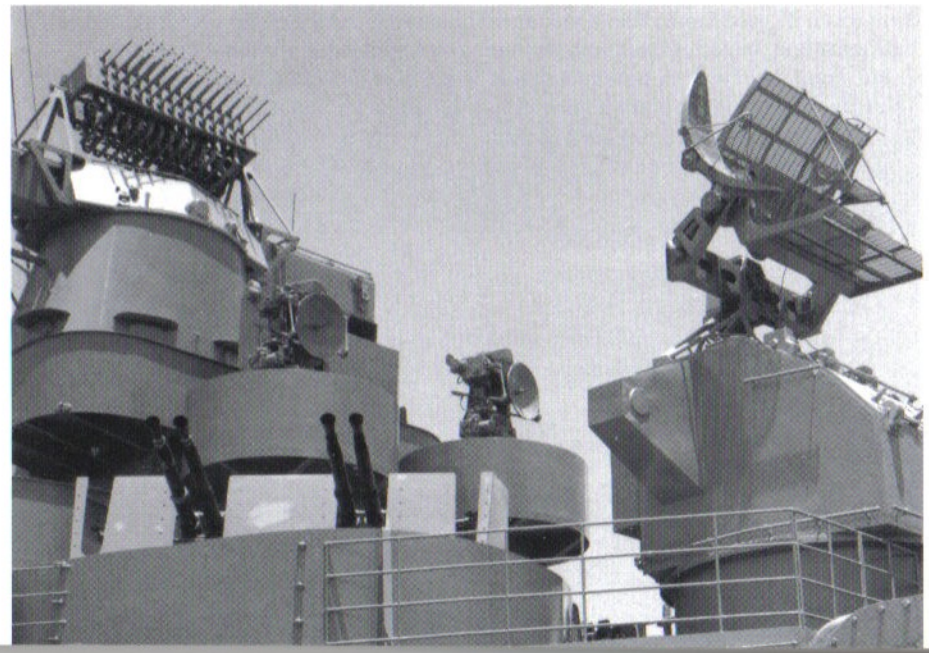


Mk 37 Director



Mk 51 Director

This photo taken on the battleship USS ALABAMA (BB-60) shows an assortment of fire control radars, including (left to right) an FH (not installed on carriers) a 40mm mount, two Mk 577 fire directors which have replaced the Mk 51's in the circular splinter shields, and a Mk 37 with Mk 12/22 radar installed.



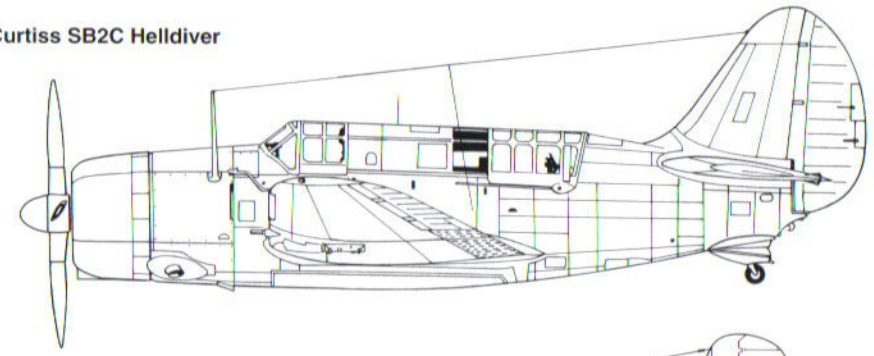
The Aircraft

The *Essex* class was initially designed to operate five 18 plane squadrons, and ten reserve aircraft, an increase of one fighter squadron over the *Yorktown* class. While the *Essex* and *Yorktown* did briefly operate F4F Wildcat fighters during shakedown activities, the class all entered service with the vastly improved F6F Hellcat fighter, as well as the TBF Avenger torpedo bomber that had begun seeing action in the South Pacific during the summer and fall of 1942. The durable SBD Dauntless dive bomber was slated to be replaced with the SB2C Curtis Helldiver, but the new aircraft had extensive teething troubles due in large part to the Navy's requirement that two dive bombers fit on a carrier elevator. The resulting design had serious problems with lateral stability, causing the *Essex* to decline to equip its new dive bomber squadrons with Helldivers, and the *Yorktown* to reject the new plane after trials, leaving the *Bunker Hill* to carry the first squadron of "Big-Tailed Beasts" into combat. After numerous design modifications the Helldiver gradually replaced the SBD, which remained in use on some carriers until mid 1944.

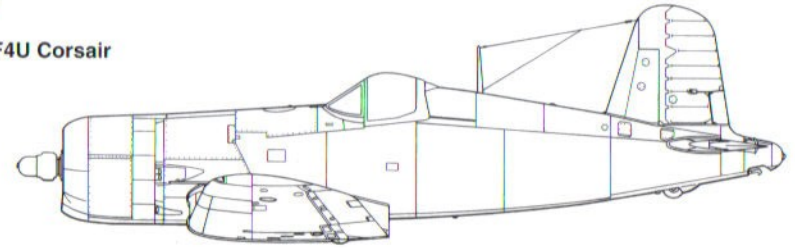
The Navy had originally intended for the Vought F4U Corsair to replace the F4F, but the powerful new fighter was deemed too big, heavy and 'bouncy' on landing for carrier use. However, after seeing great success as a Marine Corps fighter in the South Pacific in 1943, the Corsair was accepted for use on British carriers in 1944 and finally on U.S. carriers in late 1944 when the extent of the kamikaze threat became known. Once in use the Corsair found additional use as a fighter-bomber, and quickly became a mainstay of carrier air wings in the early postwar years..

As the war went on, the aircraft operated by the carriers grew heavier, larger, and required more fuel and ordnance. Even so, the efficiency of flight operations continued to increase as the carriers' crews became more adept and the rapidly expanding fleet supply train kept the carriers supplied at a rate never envisioned prior to the war.

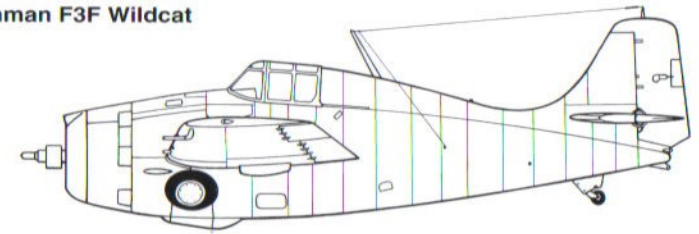
Curtiss SB2C Helldiver



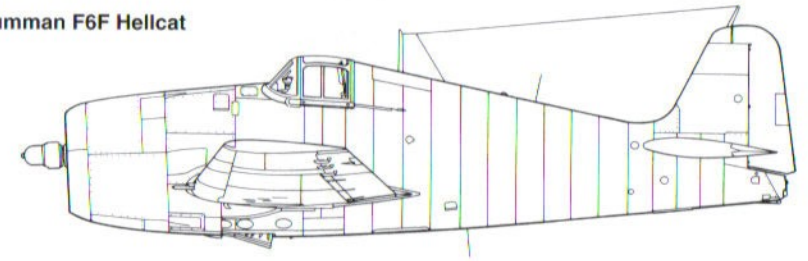
Vought F4U Corsair



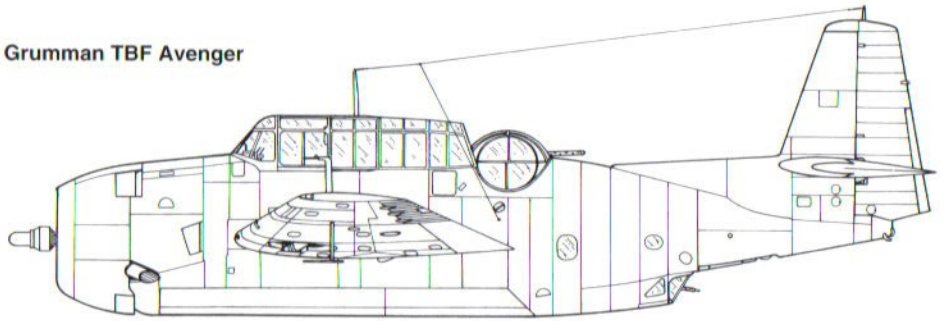
Grumman F3F Wildcat



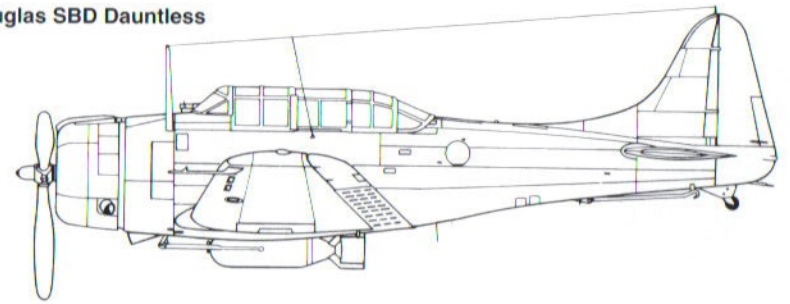
Grumman F6F Hellcat



Grumman TBF Avenger

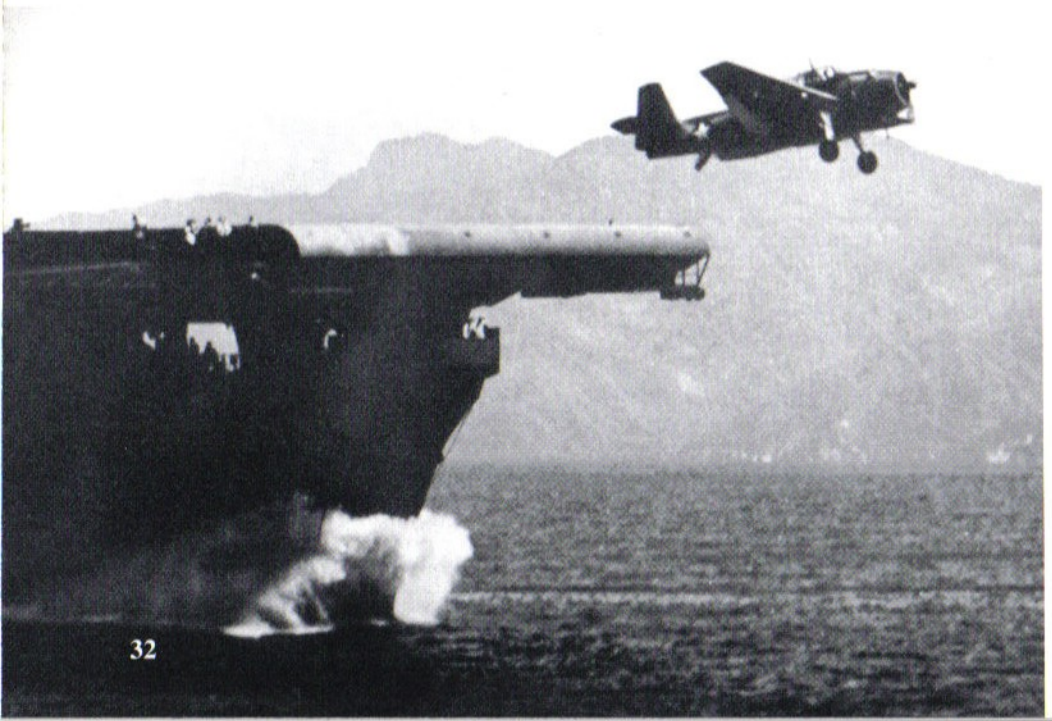


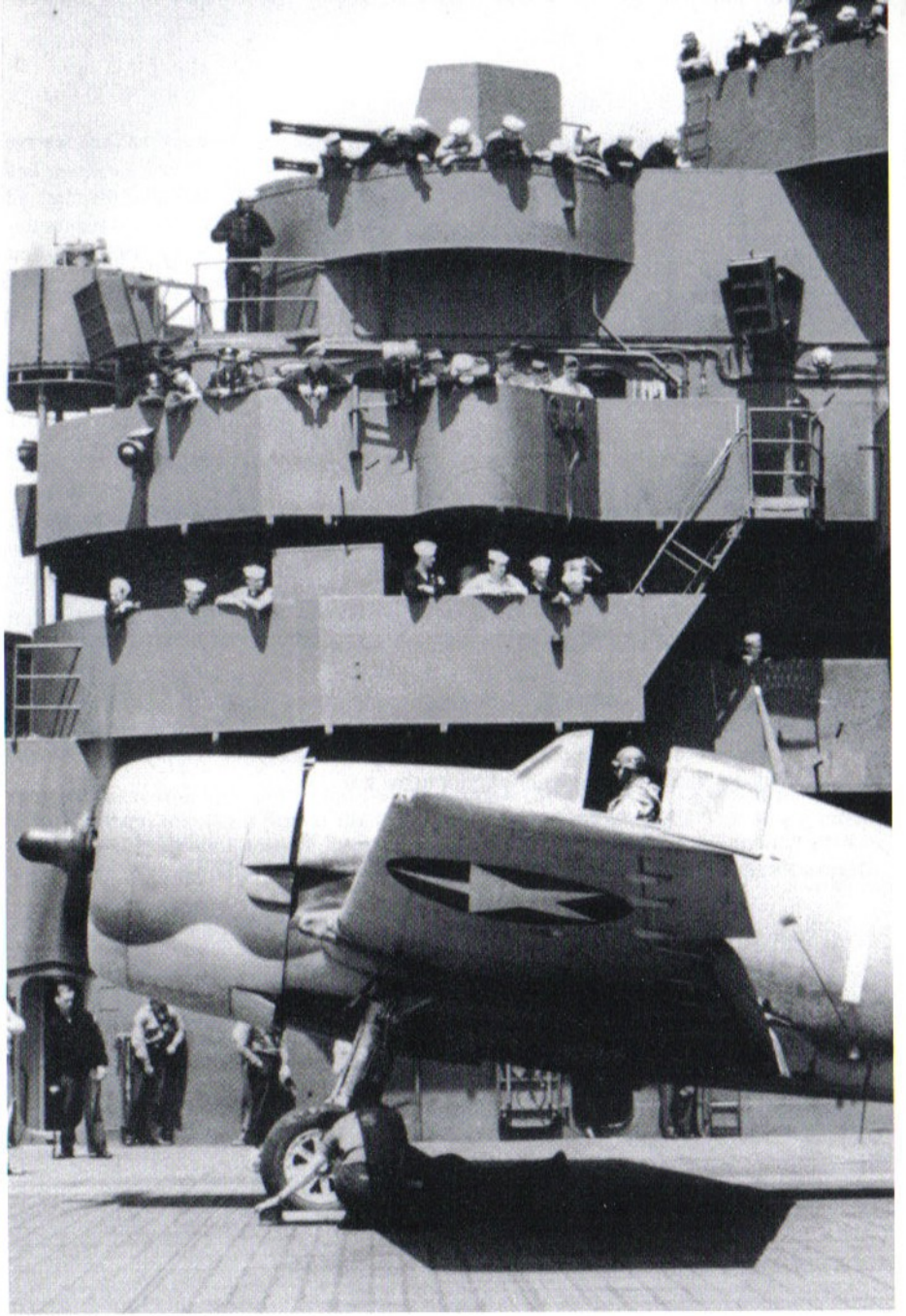
Douglas SBD Dauntless



SBD-5 dive bombers await the takeoff signal during raids on Marcus and Wake Islands

A TBF Avenger torpedo bomber launches from an Essex class carrier during shakedown trials in mid-1943. (80-G-44556)





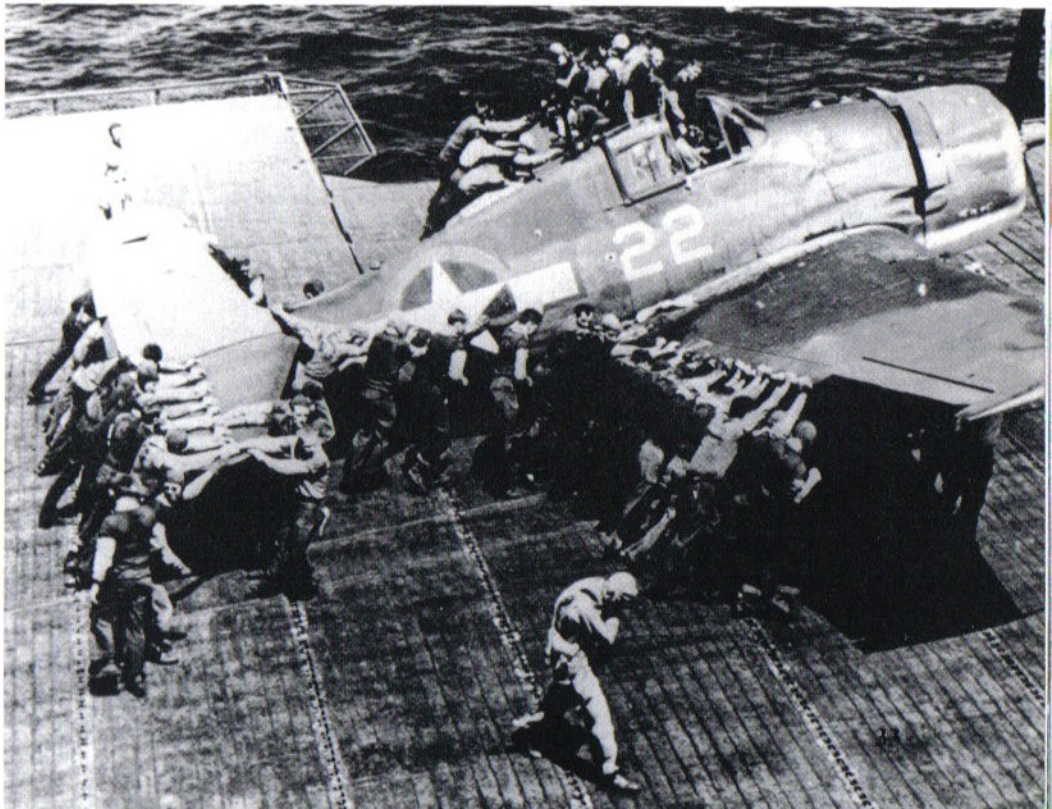
(Right) An F6F Hellcat on USS YORKTOWN (CV-10) during its shakedown cruise in May/June of 1943. The Hellcat carries the old style Blue Gray over Light Gray paint scheme and the large round national insignia. (80-G-K-15833)

A Hellcat taxis up the flight deck of the USS ESSEX (CV-9) during raids on the Marshall Islands on 20 May 1944. (80-G-373595)

F6F 3N Hellcats warm up on the USS TICONDEROGA, 9 January 1945. (80-G-305244).

Flight deck crewmen manhandle an F6F Hellcat forward on the USS LEXINGTON (CV-16) after landing in 1944. (NH 84331)

Exhausted plane handlers on the USS LEXINGTON (CV-16) rest during a lull in the battle of the Philippine Sea on 19 June 1944. (80-G-236849)



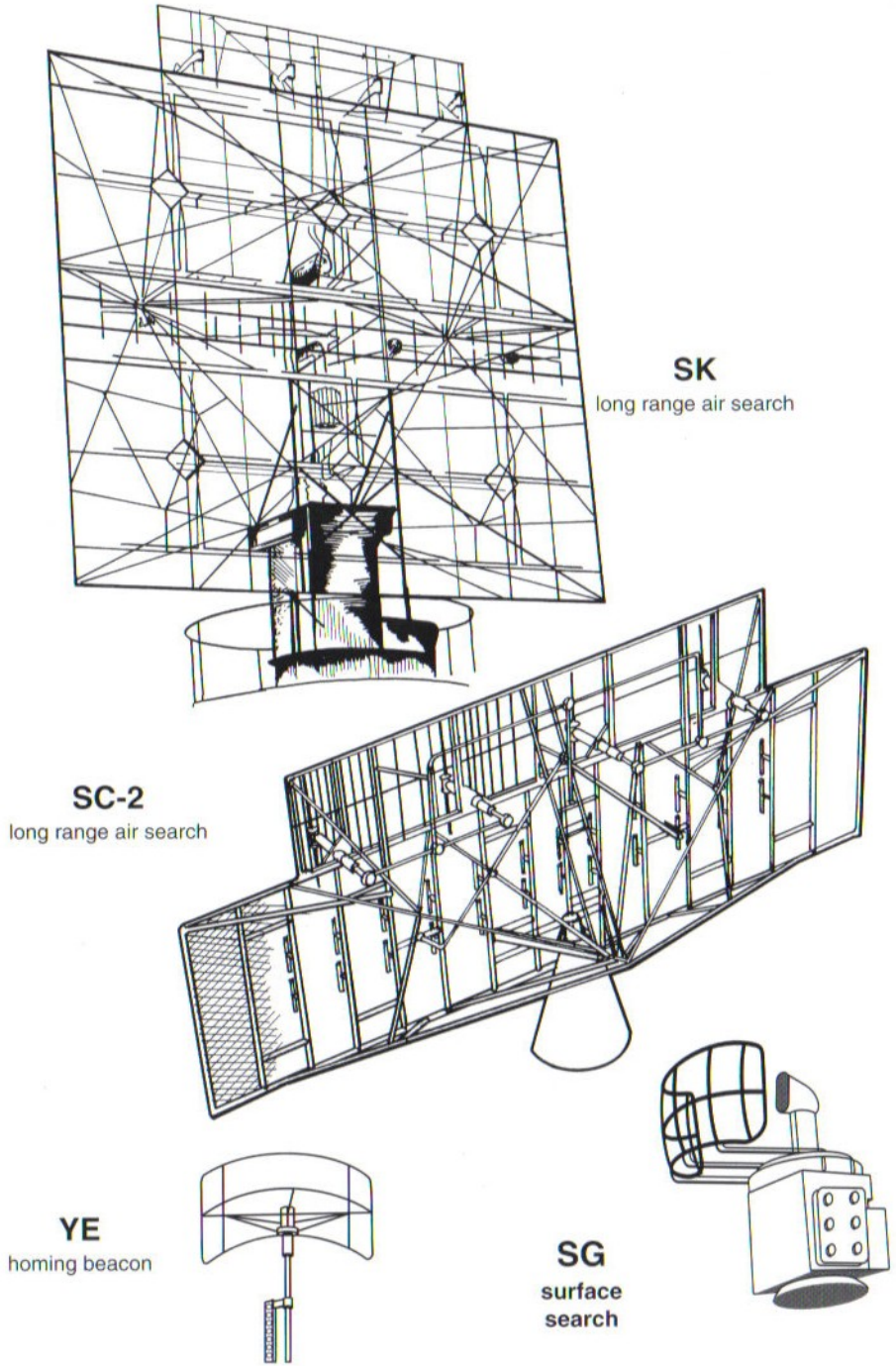
Radar

The relatively new innovation of radar allowed U.S. carrier forces in World War II to detect enemy air attacks far in advance, and send defending fighters to intercept. Carriers typically required long range air search radar to warn of incoming aircraft, fighter direction radar to vector the Combat Air Patrol (CAP) to a position where it could intercept enemy aircraft, a homing beacon for returning 'friendlies', and a means for electronically identifying friendly aircraft from unfriendly. U.S. carrier tacticians learned from the breakdowns in radar control of the all-important CAP in the carrier battles of 1942, and implemented advances in technology that allowed the carriers to operate much more effectively in the last two years of the war.

The *Essex* herself entered service with two air search radars, the large SK set for long range air search on the foremast platform atop the large tripod foremast, and the backup SC-2 sponsoned out on a platform to the starboard of the funnel. These radar units provided a full 360 degree search arc, and had a range of about 80 miles (providing an early warning of about 16 minutes). An SG set at the foretopmast provided surface search, with another SG atop the mainmast on the rear of the funnel reaching blind spots. Homing beacons were produced by a YE unit at the top of the foretopmast, with a backup usually carried outboard of the funnel, portside. The low-frequency, long range radio antennas were mounted on tall lattice masts along the starboard side of the flight deck. These characteristic masts were hinged so they could be lowered to a horizontal positions during flight operations.

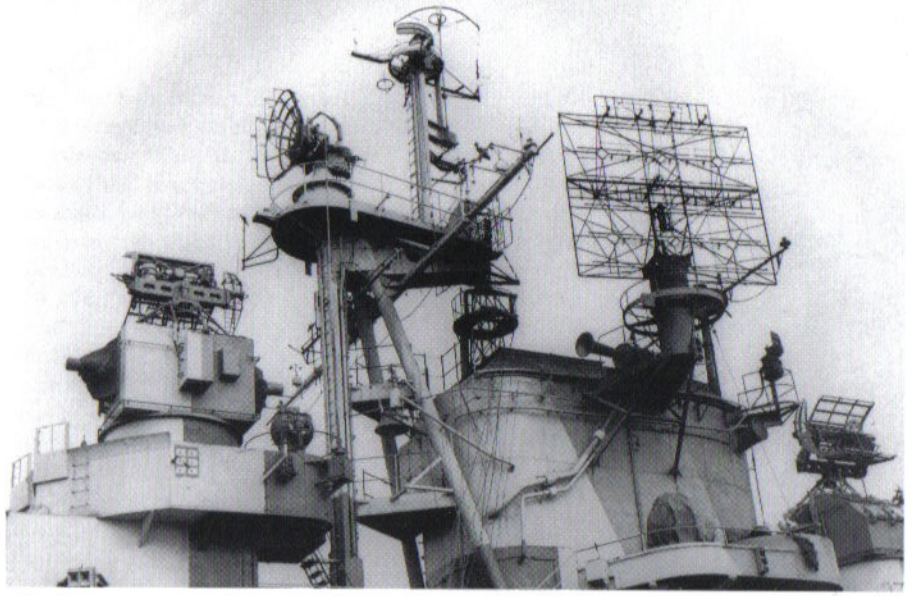
Beginning in March 1943 with the installation on the *Lexington* of an SM height-finder set (originally designated CXBL) was added. This height-finding capability was a major improvement, since it allowed the fighter director to vector CAP to the proper altitude to intercept enemy aircraft. The SM was later replaced on some ships with the lighter SP set. By the end of the war ECM antennas for search and electronic jamming had been added, and the need for a zenith search set to scan the skies directly over the carriers had led to the mounting of such radars on the catwalks, rather than the island, due to extreme cramping. By 1945 some carriers also had an airborne radar, Project CADILLAC, which was feeding information into their CIC. In 1945 some ships were fitted with a new air search radar SR in place of the SC-2, and beginning in 1946 the ships received an SX radar set, which combined air search and height finding radar into one unit. This simplified topside radar arrangement somewhat by eliminating the need for a secondary air search set.

Radar configurations changed frequently, even on the same ship, as crews attempted to find an arrangement that would eliminate interference. The ideal place for a radar array is as high as possible and as far as possible from other radars, something that was hardly possible on the small islands of the carriers. The *Essex* class, like the U.S. Navy's other war-built warships, was not designed to accommodate a large radar suite. The radar rig suffered from cramped space on the island, mutual interference, and smoke damage from being placed too near the stack. These problems would not be overcome until major postwar refits.

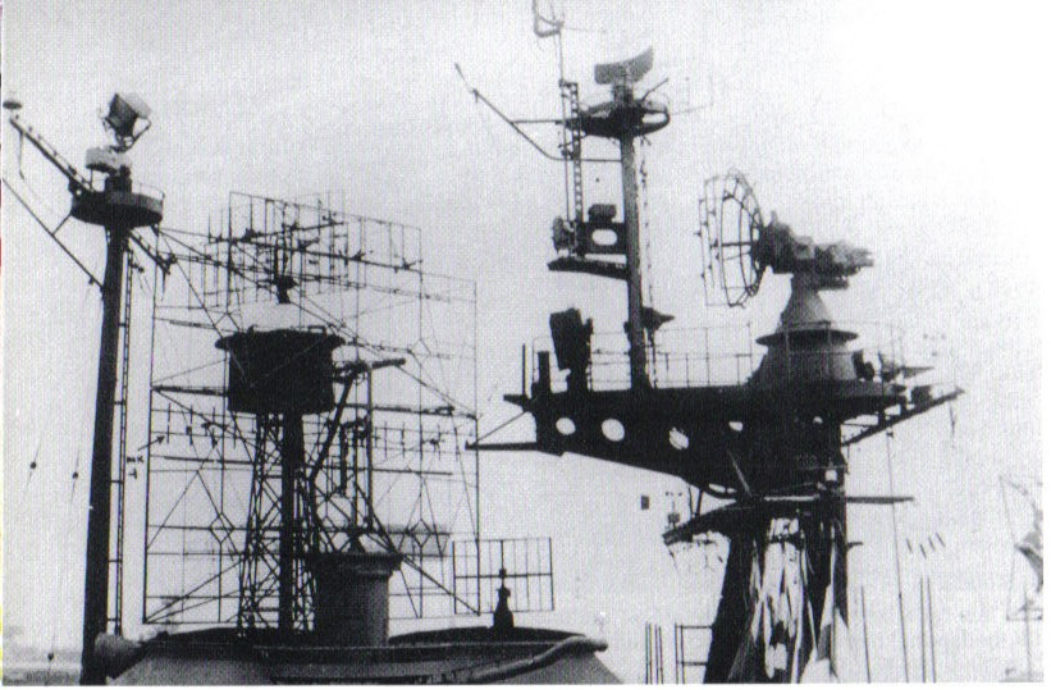


USS ESSEX (CV-9) at Pearl Harbor on 3 August 1943 has the initial radar configuration carried by the Essex class. (NH 64677)

USS TICONDEROGA (CV-14) just before completion on 23 April 1944 at Newport News Shipbuilding. The foremast platform has been extended aft to accommodate the SK array.

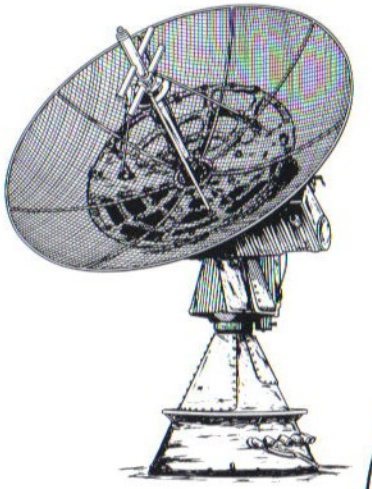


The late radar arrangement is carried on the USS YORKTOWN (CV-10) in late 1944. The SK 'bedspring' has been moved to the funnel to allow room for the new SM radar.

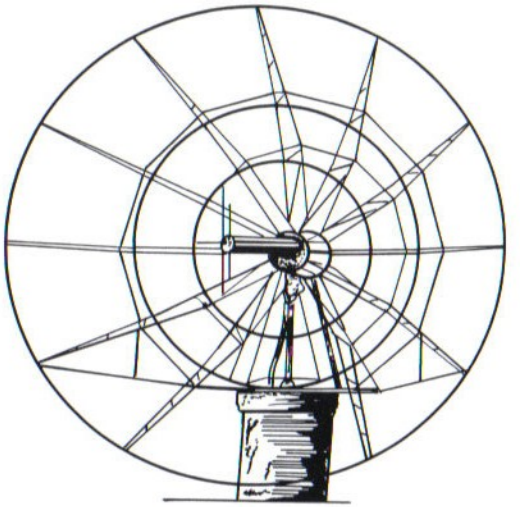


Starboard side view of the radar suite on the USS LEXINGTON (CV-16) at the Puget Sound Navy Yard on 21 February 1944. (NH 64674)

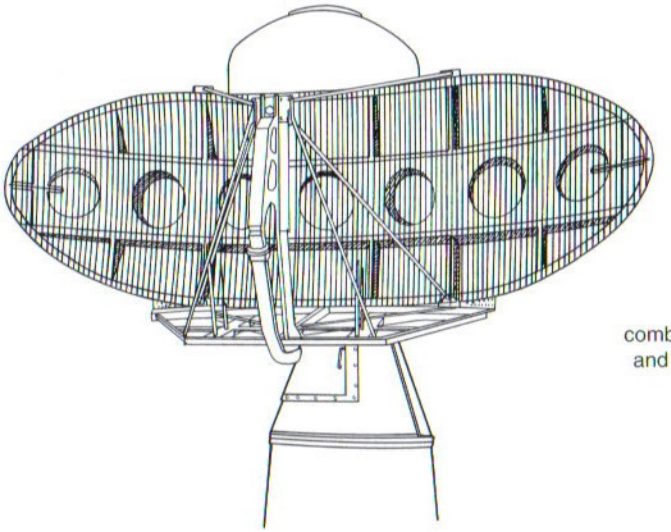
USS FRANKLIN (CV-13) burning and exploding after being hit off the coast of Japan on 19 March 1945. Her new SK-2 circular array, which replaced the SK is still intact, but the SC-2 radar has fallen on the foremast platform, and the YE and SG (halfway down the foretopmast) are on their way down. (80-G-273900)



SP
heigth finder



SK-2
long range air search



SX
combined air search
and heigth finding

Combat 1943

The *Essex* herself was the first of her class to enter service, commissioned on the last day of 1942, when the only available U.S. carrier in the Pacific was the battered but still combat-worthy *Enterprise*. Like all ships, the *Essex* went through an extended shakedown period, finally reaching Pearl Harbor five months later on 31 May 1943. Throughout the summer of 1943 reinforcements continued to stream into Pearl, with *Yorktown* arriving on 27 July, *Lexington* on 9 August with two CVLs, and *Bunker Hill* on 2 October 1943.

The Raids

The question of how to best use these new carriers, as well as the task of training large numbers of new carrier personnel on new ships with new planes, confronted Admiral Chester Nimitz, Commander in Chief, Pacific Fleet, throughout the summer of 1943. In an attempt to resolve some of these issues, Nimitz embarked on a series of raids that were essentially training in nature. Accordingly, the new carriers saw their first action on 31 August 1943 when *Essex*, *Yorktown*, and *Independence* under the command of Rear Admiral Charles A. Pownall raided Marcus Island. This first strike taught several lessons, including the benefits of predawn launches, the new four-channel VHF voice radio sets, and operating three carriers (two CV's and one CVL) in a circular formation that maximized anti-aircraft defenses.

Using the *Lexington* and CVLs *Princeton* and *Belleau Wood*, Pownall's next objective was to soften up installations on Tarawa and Makin in the Gilberts in anticipation of landings. The attacks on 18 and 19 September did little towards knocking out Japanese defenses, but did provide invasion planners with priceless photos of the landing areas, and new carrier crews with experience in air operations. Two weeks later, *Essex*, *Yorktown*, and *Cowpens* joined *Lexington*, *Independence* and *Belleau Wood* in a raid on isolated Wake Island, with the strike group this time under the command of Rear Admiral Alfred E. Montgomery. The Wake operation combined air strikes with a cruiser bombardment covered by two of the CVLs, and the first submarine stationed to rescue pilots shot down over the target. Japanese fighter cover provided the new Hellcat pilots with a taste of air combat, and confirmed that the pilots indeed had an airplane that was vastly superior to the old F4F. The light carriers also proved that use of the deck catapults greatly improved flight operations, and the submarine rescue proved a success, with six out of eleven downed pilots being rescued, despite lack of VHF radio or fighter cover for the submarine.

While Montgomery's report noted the disturbingly high aircraft losses due to the relatively poor state of carrier training, Nimitz decided to end the training raids, and proceed with the long-awaited drive across the Central Pacific, using the carriers of his new Fifth Fleet to smash Japanese air and naval power.

Before the scheduled attacks on the Gilberts took place, however, Nimitz reluctantly loaned the *Essex*, the new *Bunker Hill*, the old *Saratoga* and two CVLs to Rear Admiral Halsey's carrier-lessThird Fleet to support landings in the Southwest Pacific by raiding the Japanese base at Rabaul. The U.S. carriers came under heavy attack after launching strikes on November 11, but emerged essentially unscathed, and in the process destroyed most of the aircraft of the Japanese carrier fleet which had similarly been 'loaned' to Rabaul.

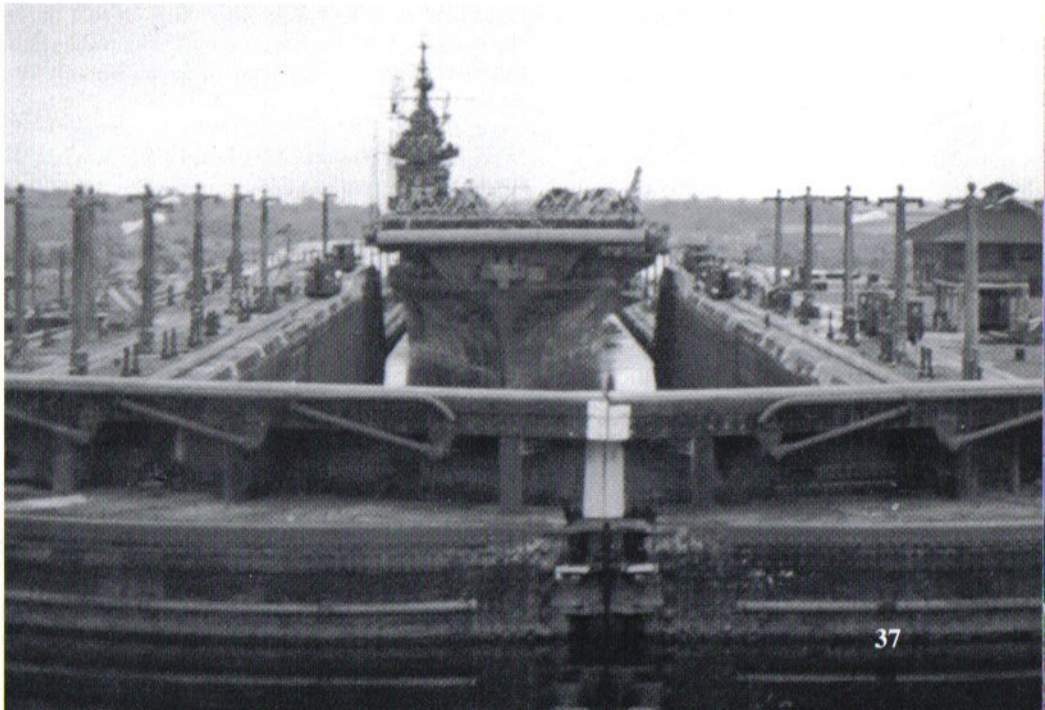
Operation Galvanic - The Invasions of the Gilberts

On November 19, 1943 the *Essex*, *Yorktown*, *Lexington* and *Bunker Hill*, along with the refitted *Enterprise*, *Saratoga*, five light carriers, and five escort carriers began air attacks on Japanese installations as part of Operation Galvanic, the invasions of the Gilbert Islands. The heavy and light carriers, designated Task Force 50, had a dual mission — neutralize Japanese airfields and other defenses, as well as attack the Japanese fleet, should it attempt to defend the islands. While the Nimitz plan was similar in overall design to the Japanese plan at Midway the year before. The Japanese decision to drain aircraft away from the Gilberts, Marshalls, and Wake to support Rabaul now meant that the Japanese carriers at Truk now had no aircraft with which to threaten the invasion.The landing was by no means unopposed, however. The escort carrier *Liscome Bay* was sunk by a Japanese submarine with a loss of 614 lives, and the big carriers, tied to their station within 100 miles of Tarawa and Makin, came under attack from the relatively few Japanese aircraft left in the Marshalls, resulting in the *Independence* being torpedoed aft.

By the end of November Pownall's carrier groups had left the Gilberts, but Nimitz was anxious to get on with the next step in the offensive, the invasion of the Marshall Islands, some 300 miles away. Accordingly, on 4 December 1943 Pownall took four heavy and two light carriers to soften up Kwajalein and Wotje. The task force suffered minor casualties but achieved poor results, and the *Lexington* took a torpedo aft that evening when the surviving Japanese bombers struck back. Pownall's lack of aggressiveness demonstrated on this mission and his tendency to emphasize defensive strategies over the carriers' striking capabilities cost him his job as carrier commander.

To replace Pownall, Nimitz selected Rear Admiral Marc A. Mitscher, the veteran pilot who had commanded the *Hornet* on the Doolittle Raid and at Midway, and later Guadalcanal's shore-based aircraft. Under Mitscher's aggressive leadership from January 1944 to August 1945, Task Force 58, as it would now be called, became the most powerful and self-sufficient naval force in history.

USS BUNKER HILL (CV-17) going through the Gatun Locks of the Panama Canal on 17 September 1943.



1944

Operations Flintlock and Catchpole - The Invasions of the Marshalls

After a brief rest at Pearl, Task Force 58 weighed anchor again, with the new *Intrepid* and *Langley* replacing the *Lexington* and *Independence*, which were undergoing repairs. While the next landings had been set for the islands of Wojte and Maleolap in the Marshalls, reconnaissance photos taken of Kwajalein revealed an airstrip that, once seized, could be used to batter the other two islands and allow the aircraft carriers to retire shortly after the landings. Since 'leapfrogging' past the two islands could cut several weeks from the duration of the war as well as save the lives of American troops, Nimitz chose to strike Kwajalein.

Rather than the defensive role the carriers had played in the Gilberts invasions, Mitscher intended an offensive strategy of predawn fighter sweeps aimed at destroying enemy aircraft on the ground, thus assuring control of the skies over both the beaches and the task force. Accordingly, Mitscher also hit Roi, Taroa and Wotje airfields for two days prior to the landings on January 31, until no Japanese aircraft remained to oppose the landings. His carriers could then stay at the invasion site as long as necessary to support the landings, since the nearest Japanese aircraft at Eniwetok and Wake could not reach him. Similarly improved tactics by Army and Marine commanders allowed the successful invasions of the islands, and the reserves that were not needed were sent to the next target, Eniwetok, which was assaulted on February 19, 1944, with *Bunker Hill*, *Saratoga*, and four CVLs providing air cover.

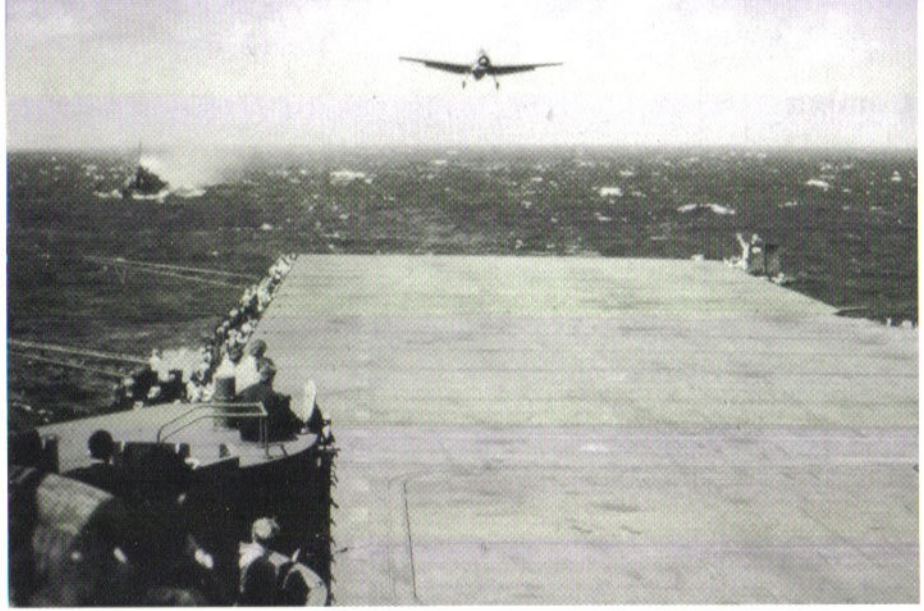
Following the strikes at Kwajalein and Eniwetok, Mitscher did not make the 4,000 mile round trip back to Pearl Harbor, instead proceeding to the remote undefended Majuro Atoll to resupply from shuttling tankers, supply ships and escort carriers This strategy resulted in enormous fuel savings, and allowed the carriers to strike new targets far more quickly.

Truk

The next target in the Central Pacific advance was the feared Japanese base at Truk, about which little was known. Task Force 58 was ordered to attack the heavily defended atoll to provide information to invasion planners, as well as to neutralize land-based air that might interefere with landings at Eniwetok. Little did any of the American commanders realize how weakly defended Truk actually was. The coastal defenses were modest, the antiaircraft batteries inadequate, the air strips small, and the naval facilities minor. Nonetheless, the fliers from *Enterprise*, *Yorktown*, *Essex*, *Intrepid*, *Bunker Hill* and four CVLs feared the worst when they sortied on 17 February. As they anticipated, the Combined Fleet was not at anchor, having left shortly after a U.S. reconnaissance plan had been spotted two weeks earlier. They did find a large contingent of merchant shipping, and a large number of aircraft.

Mitscher's strike was heavier than Nagumo's had been at Pearl Harbor, and more thoroughly organized. His attack began with a predawn sweep of 75 Hellcat strafers, followed by hourly strikes for two days. Due to an overly complicated chain of command, the Japanese commander, although warned that Mitscher's carriers were coming, only sortied 40 fighters, leaving some 325 on the ground to be destroyed by the U.S. pilots, along with 13 warships and 34 merchantmen. The most famous American fighter pilot at Truk was not flying a Hellcat, however. Major Gregory 'Pappy' Boyington had been taken prisoner by the Japanese at Rabaul, and had just arrived on Truk when the attack started. Miraculously, Boyington and his companions survived both the raid and the war.

Before being destroyed, however, the Japanese airmen mounted a night attack on the U.S. carriers that slipped past a night fighter to score a torpedo hit on the *Intrepid*. Steering with her screws only, and rigging a temporary "sail" to keep her on course for Pearl, the big carrier



A TBF-1 Avenger torpedo bomber landing on an Essex class carrier in 1943. A plane guard destroyer can be seen astern and to the starboard. For safety the landing signal officer and spectators are in the 40mm and 5 inch/.38 gun positions. (80-G-K-16440)

An Essex class carrier leads an Independence class light carrier. With neither launching nor recovery of aircraft going on the flight deck antennas are in the raised position. The entire task force has just completed a turn to port. (80-G-373623)

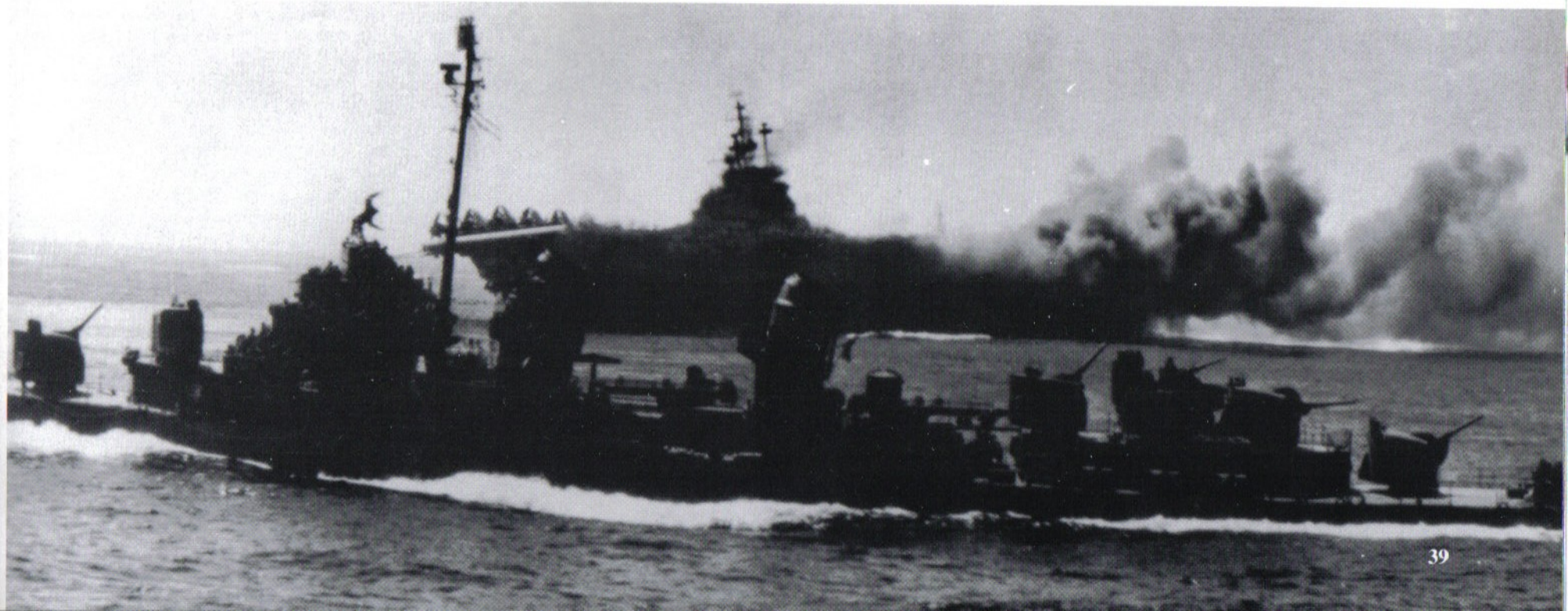
left the task force with the CVL *Cabot* providing air cover.

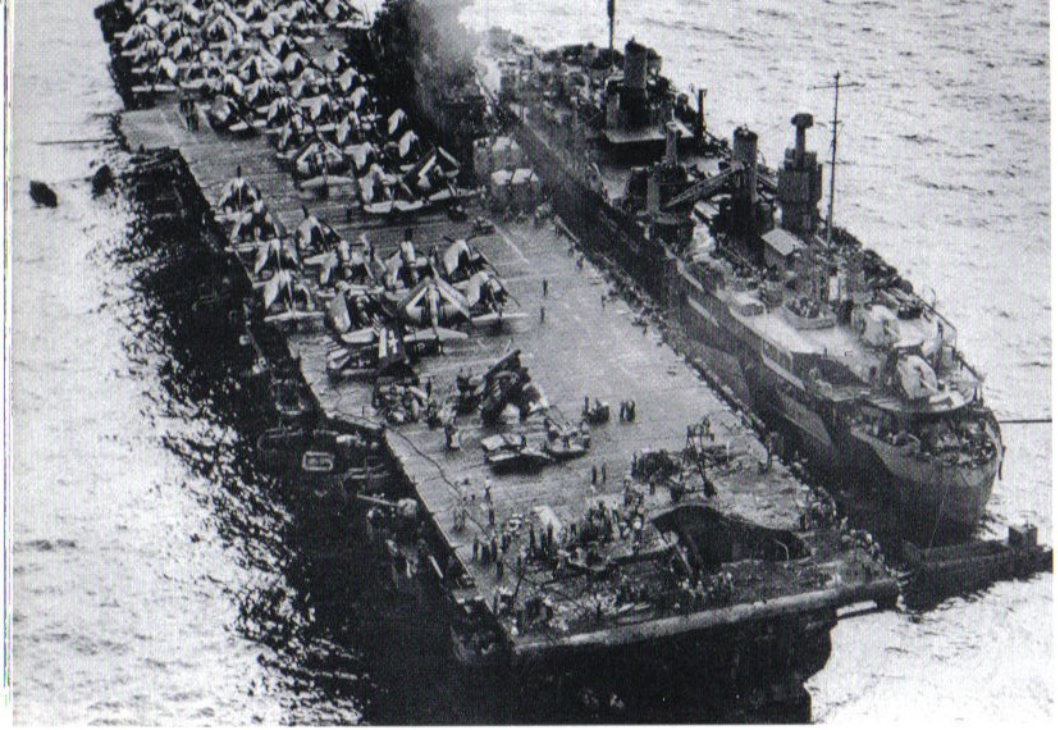
Mitscher's raid on Truk had been the Pacific Fleet's best performance yet, and resulted in the Japanese decision to abandon the air defense of Rabaul, withdrawing its aircraft to Truk. On the American side, it marked the final action before a decision had to be made whether to commit Task Force 58 to the Central Pacific strategy which next required seizing the Marianas, or to General MacArthur's New Guinea-Philippines strategy. The decision was finally made not to invade Truk, and to proceed with taking Saipan, Tinian, and Guam in the Marianas, but only after the carriers had helped MacArthur take Hollandia on New Guinea.

While Guam, which had been an American possession before the war, was well-known, little was known about the beach and reef conditions at the other two islands to be taken in the Marianas, so Nimitz ordered Mitscher, returning from Truk, to strike at the Marianas before returning to Majuro. For this strike Mitscher detailed *Yorktown*, *Bunker Hill*, and three CVLs, beefed up with aircraft and air crews from the other carriers which then set course for Majuro. The carriers were spotted the day before the attack, and had to fight their way in. Fortunately, Task Force 58's radar-directed antiaircraft fire was sufficient to drive off the attackers, and the carriers escaped damage. Aided by overcast weather, the U.S. forces destroyed 101 aircraft on the ground, and another 67 in the air. Losses were minor, and the detached carriers returned to Majuro to prepare for the next operations.

(Right) Firefighters attack dozens of small fires burning on the flight deck of the USS INTREPID (CV-11) after she was hit by kamikazes off Luzon on 25 November 1944. (80-G-342482)

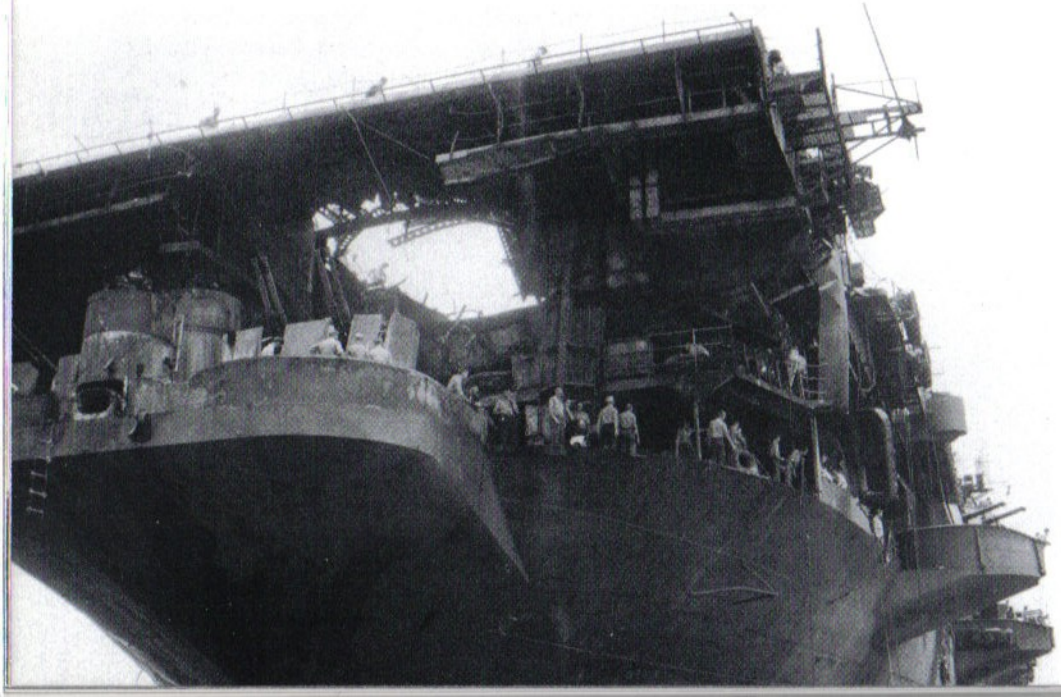
Waiting to see if her help is needed, a FLETCHER class destroyer circles the USS INTREPID (CV-11) after she was hit by a kamikaze off Okinawa on 16 April 1944. (80-G-344531)





USS RANDOLPH (CV-15) under going repairs at Ulithi on 13 March 1945, two days after being hit by a kamikaze. (80-G-344531)

Damage to the RANDOLPH from the Kamikaze hit looks far worse than it is. Damage to the flight deck could usually be repaired quickly. (80-G-274122)



The Carolines and Hollandia

For MacArthur's leapfrogging advance to Hollandia to be successful, Task Force 58 would have to neutralize Japanese air defenses in the western Caroline Islands. Fifth Fleet commander Admiral Raymond A. Spruance prepared an attack plan utilizing three carrier groups to attack the Carolines, including the Palaus group that the Japanese Combined Fleet had been using as an anchorage. Spruance was prepared for either a Pearl Harbor-style ambush of the Japanese fleet or a carrier clash —Task Force 58 could handle either.

Task Force 58, including the new *Hornet* and the repaired *Lexington* sortied from Majuro on March 22. Two Japanese night torpedo attacks against the U.S. carriers proved unsuccessful, and on March 30, Task Force 58 executed Operation Desecrate One, the destruction of aircraft, airfields, and shipping in the Palaus in three days of air strikes. The Japanese fleet, forewarned, had slipped away. The carriers returned to Majuro, replenished, and headed south to soften up the Japanese base at Hollandia and engage the Japanese fleet if it offered battle. Three days of strikes on airfields already wrecked by the Fifth Air Force ensued, with still no sign of the Japanese fleet. On the way back Nimitz ordered Mitscher to hit Truk again, as well as two sites in the western Carolines.

Operation Forager - The Battle of the Philippine Sea

By the summer of 1944 the Japanese Navy's refusal to join battle had allowed it to replenish its land-based air units and to a degree rebuild its carrier strength. While the training of its new pilots was wholly inadequate, Japan now had a fleet that could at least hope to engage Task Force 58. The decisive carrier battle that both sides had been seeking began with the sortie from Majuro on 6 June 1944 of some 15 U.S. carriers, including the seventh *Essex* class unit, the new *Wasp* (CV 18). Only *Saratoga*, refitting as a night carrier, and *Intrepid* and *Independence* undergoing repairs, would miss the battle. Mitscher began by destroying land-based Japanese aircraft in the Marianas on 11-12 June, followed by the destruction of shore facilities on 13-14 June, and strikes against air bases in the Bonins on 15-16 June by two American carrier groups including *Hornet*, *Essex*, and *Yorktown*.

Meanwhile, Admiral Ozawa on the new Japanese carrier *Taiho* had weighed anchor on 15 June, his ships, including nine carriers, filled with highly volatile unrefined crude oil, with orders to engage the U.S. fleet. Ozawa's intial plan, that of striking the U.S. carriers from long range before they could hit him succeeded, because Spruance decided to maintain a fixed position near the Marianas to protect the landings, rather than turn to attack Ozawa's approaching carriers, as Mitscher desired. Accordingly, on June 19 Ozawa's forces sent out 372 aircraft to attack the American carriers. Ozawa's strategic advantage went for naught, however, because 450 defending Hellcats and fierce AA fire destroyed almost 300 of the Japanese attackers in an engagment that came to be known as the Great Marianas Turkey Shoot. Worse, the only damage inflicted was minor damage to the *Wasp*, *Bunker Hill* and a battleship. Rounding out the unluckiest day for the Japanese navy since Midway, U.S. submarines sank the carriers *Shokaku* and *Taiho* that afternoon, with both losses attributable to the volatile fuel oil and poor damage control.

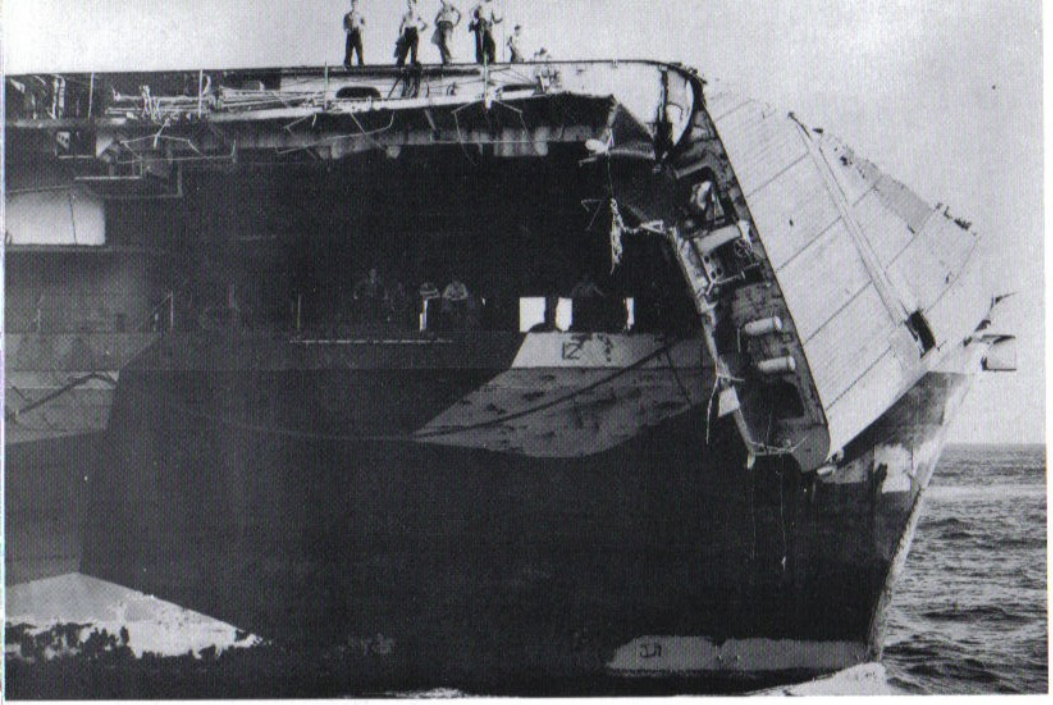
Late the next afternoon the U.S. carriers launched an attack on Ozawa's carriers at extremely long range. The results of the attack were not decisive, with only one carrier sunk and three damaged, but the last of the carefully hoarded Japanese aircrews were now gone, effectively ending the Japanese carriers' offensive capacity for the rest of the war. Flying home in darkness, and on empty fuel tanks, the U.S. planes could not find their carriers, or see to land. Mitscher gave the famous order "turn on the lights," and at the risk of attracting lurking

Eight Essex class carriers and the USS SARATOGA (CV-3) are anchored at Ulithi during February of 1945 just prior to the Iwo Jima operation. (80-G-347155)

Japanese submarines and aircraft, gave hundreds of pilots an opportunity to land safely on their home carriers.

After another strike at Iwo Jima, the fleet retired again to rest and replenish, but not for long. After a raid on the Philippines revealed the Japanese defenses to be weaker than thought, the timetable for the invasion of the Philippines was moved up. On 12 October 1944 Mitscher's carriers sortied against Formosa as Task Force 38, now under the overall command of Admiral Halsey, to draw out and destroy aircraft that might have otherwise been used to oppose the landings. For this operation, Task Force 38 had grown to 17 fast carriers, including the new *Hancock* and *Franklin*. The operation was a success, with more than 600 Japanese aircraft destroyed, with no damage to the carriers, and only 79 U.S. aircraft lost. The carriers had now cleared the way for the invasion of the Philippines.

Ships of the Pacific Fleet anchored at Majuro Atoll on 25 April 1944 shortly before leaving to attack Truk. Four Essex class carriers, three Independence class light carriers, and the USS ENTERPRISE (CV-6) are present. (80-G-225251)

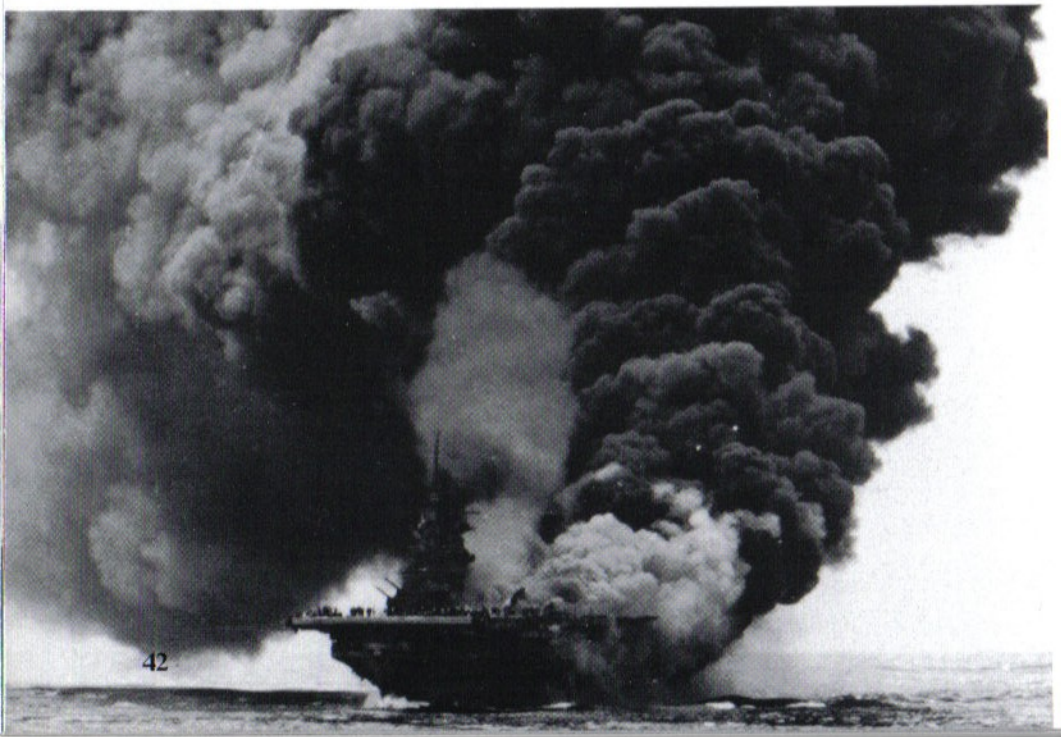


The Japanese were not the carriers' only enemy. The forward section of the HORNET's flight deck buckled and then collapsed during a typhoon in June of 1945.

USS BUNKER HILL (CV-17) burns after being hit by two kamikazes off Okinawa on 11 May 1945. (80-G-274266)

Flight deck of the USS BUNKER HILL (CV-17) looking aft while the fires are still out of control. (80-G-323712)

Flight deck of the USS BUNKER HILL containing the wreckage of aircraft resulting from the kamikaze hits. (80-G-2599040)



The Essex class carriers often operated along with the converted light cruisers of the Independence class carriers. Here, Task Group 38.3 steams toward Ulithi in line ahead after strikes in the Philippines on 12 December 1944. Viewed from the USS ESSEX (CV-9) are USS LANGLEY (CVL-27), USS TICONDEROGA (CV-14), and battleships WASHINGTON (BB-56), NORTH CAROLINA (BB-55), and SOUTH DAKOTA (BB-57). (80-G-476120)

The Battle for Leyte Gulf

On 20 October 1944 U.S. forces landed on the island of Leyte in the Philippines, fulfilling MacArthur's promise of "I shall return." The Japanese Navy responded by sending two separate forces of surface ships to attack the invasion fleet, using its remaining carriers, now harmless without aircraft, as bait to lure away Task Force 38. The series of battles that became known as the Battle for Leyte Gulf began with land-based aircraft attacking the U.S. carriers, resulting in the loss of the CVL *Princeton*. Task Force 38 struck back in the Battle of the Sibuyan Sea, sinking Japanese superbattleship Musashi and damaging other ships. U.S. aircrews overestimated the amount of damage done, and when search planes sighted the four Japanese carriers to the north, Halsey charged to the attack, leaving a vulnerable invasion fleet unguarded.

On 25 October 1944 the Japanese plan to lure the carriers away from Leyte so that its surface ships could destroy the invasion fleet was on the verge of succeeding. Admiral Kurita's ships had continued to advance after their losses in the Sibuyan Sea, and arrived off Samar to find only eighteen escort carriers and seven destroyers and destroyer escorts defending the invasion fleet. To the north, Halsey was launching against the decoy carriers, and succeeded in sinking three and damaging the fourth, which his surface ships eventually sank, before frantic radio signals from the escort carriers and Nimitz at Pearl Harbor forced him to turn around and head back south. Kurita was on the verge of victory against the hopelessly outgunned escort carriers when he inexplicably broke off his pursuit and retreated, saving the invasion force. Although a great victory for the U.S. forces, the day ended on an ominous note when two escort carriers were struck by the first kamikazes, with one, the *St. Lo*, sunk.

(Below) USS FRANKLIN afire after kamikaze attacks on 19 March 1945. (80-G-273880)

(Right and facing page) USS FRANKLIN (CV-13) burns and explodes off the coast of Japan on 19 March 1945. Fire fighting water is streaming from her hangar deck, and fire hoses are strung along the flight deck. The list apparent in the photo is not a result of the attack, but rather the result of massive amounts of fire fighting water. (80-G-49128; 80-G-273882)

1945

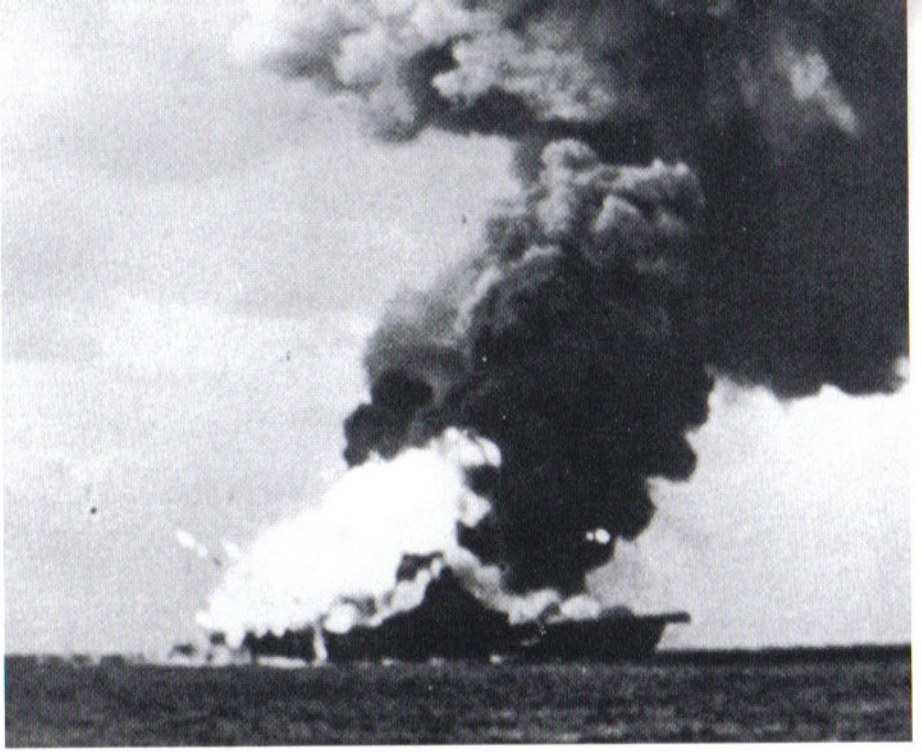
Shipyards continued to launch and deliver *Essex* class carriers throughout 1944 and early 1945, with the result that by the spring of 1945 the Pacific Fleet had an additional five carriers on station, the *Ticonderoga*, *Bennington*, *Randolph*, *Bon Homme Richard*, and *Shangri La*. Nor were these the end of the line. By war's end three more *Essex* class carriers had been commissioned and were undergoing shakedown cruises, with six more under construction.

Admiral Spruance relieved Halsey in early 1945, and the Third Fleet became the Fifth Fleet once more. In February the fleet struck at Japan to prevent interference with U.S. landings on 19 February at Iwo Jima. On 1 April 1945 the largest amphibious landings in history took place on Okinawa, but only after the carriers, along with the British Pacific Fleet, attacked airfields on the Japanese mainland to ensure command of the air over the invasion sites.

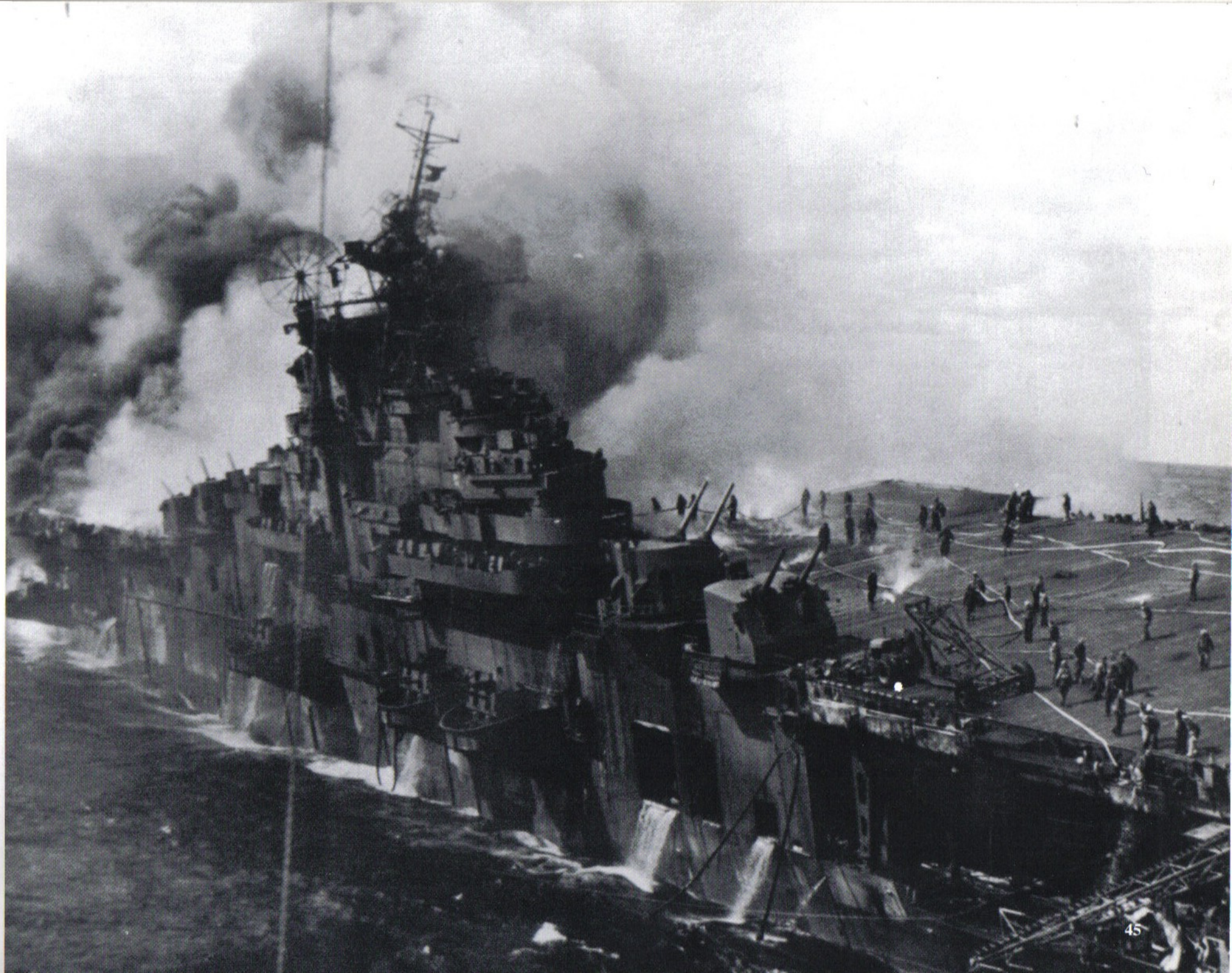
After over a year and a half of combat, and after having driven the Japanese fleet from the Pacific, few expected this to be the carriers' most difficult time, but the massive kamikaze and conventional bomber attacks mounted from the Japanese home islands made it so. The kamikaze tactic proved to be the most effective means yet found of attacking the carriers, since the ship's defenses were largely capable of frustrating away a conventional attack. The kamikaze also struck the thin flight decked American carriers where they were weakest, and despite a strong umbrella of fighter cover, hundreds of protective screening vessels, and good damage control, many carriers were put out of action, if only temporarily.

The *Wasp*, *Enterprise*, *Yorktown*, and *Franklin* were all hit and seriously damaged off Okinawa, and on 6-7 April the Japanes launched a huge air offensive totalling over 350 kamikazes and an equal number of conventional bombers. The attacks continued through May, with more carriers being put out of action, including the *Bunker Hill*, which lost 396 men. However, by summer the continual pounding of Japanese airfields, as well as a shortage of planes, pilots, and fuel, caused Japanese air attacks to drop off in intensity. And while they did not cease completely until peace in August, the carriers had ridden out the worst.

No *Essex* class carrier was ever sunk by a kamikaze attack, and none was ever unable to reach port under its own power, but one came close — the *Franklin*. Hit by two bombs on 19 March, the *Franklin* was caught at her most vulnerable, with a load of fully gassed and armed planes, and with fueling still underway. Secondary explosions like those that sank the three Japanese carriers at Midway rocked the *Franklin*, but efficient damage control kept the flames under control, and the ship's armored hangar deck protected her magazines and propulsion plant. Despite 724 killed and 265 wounded and extensive damage topside, the carrier was able to steam back to New York for repairs under her own power.



Third Fleet carrier planes in formation over the fleet, awaiting orders to move into Japanese ports as part of the occupation force, 23 August 1945. (80-G-490379)



Postwar

After the end of the war on 2 September 1945, Task Force 58 remained on station until the Japanese islands had been occupied by U.S. forces. Many of the carriers then saw duty as troop transports in Operation Magic Carpet bringing soldiers from the corners of the globe back to the United States. Two incomplete units, the *Iwo Jima* and the *Reprisal* were cancelled in 1945, and most of the class was then laid up beginning in 1947, with only the most recently completed units staying in service. When the Korean War broke out in June 1950, only the *Valley Forge*, *Philippine Sea*, *Boxer* and *Leyte* were on active duty and were immediately sent to Korea. They were joined in the fall of 1950 by the recommissioned *Princeton* and a year later by the *Bon Homme Richard* and the *Antietam*. In 1951-53 additional units of the mothball fleet were modernized and reactivated, with the *Essex*, *Kearsarge*, *Oriskany* and *Lake Champlain* also seeing action off Korea.

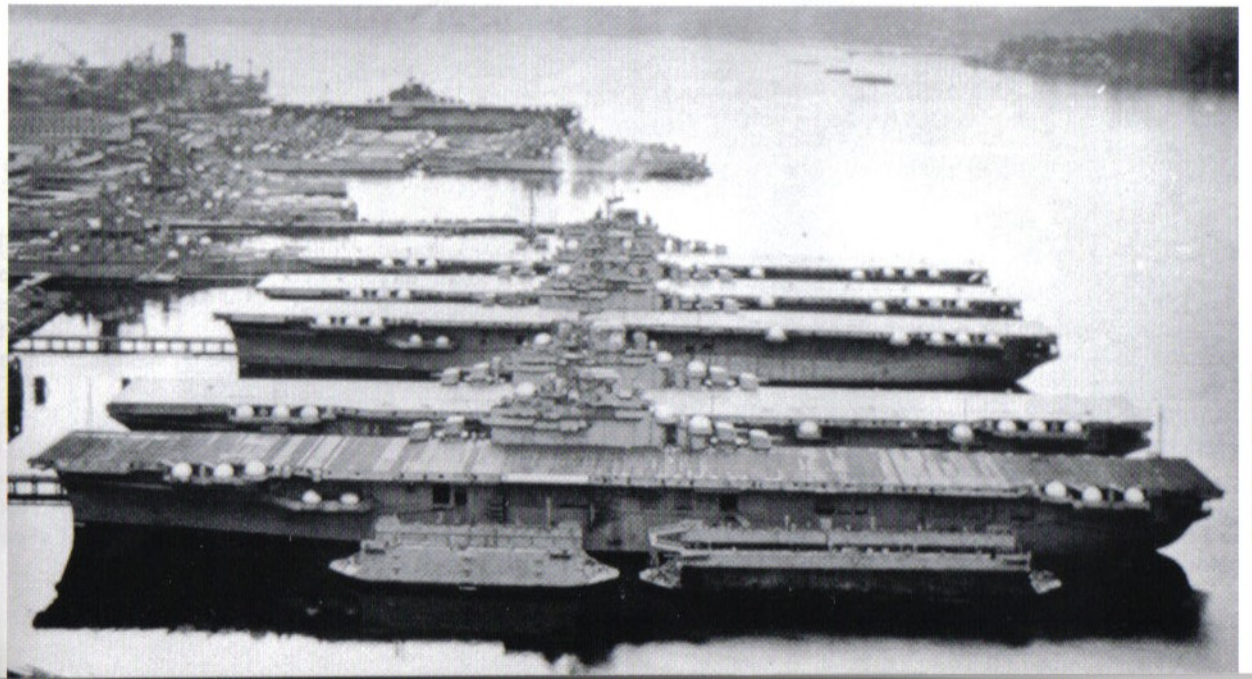
By the end of the Pacific war the shortcomings of the class and the need for a major redesign had become apparent. The advent of jet aircraft pushed the initial *Essex* design past its limits, requiring stronger flight decks, more powerful catapults, bigger elevators, and many other improvements. All the necessary changes could not be made in a simple refit, but required a major modernization. The result was the suspension in 1947 and eventual completion in 1950 of the *Oriskany* to a substantially modified design, the prototype of the SCB-27A refits that nine of the class were to undergo. SCB-27A included hull blisters to accommodate increased topweight, new elevators, catapults, a redesigned island, and replacement of 40mm and 20mm mounts with twin 3 inch mounts. Beginning in 1951 six additional Essexes received SCB-27C conversions, which also added steam catapults, a revised elevator arrangement, and after trials on the *Antietam* proved successful, an angled flight deck. Program SCB-125 brought enclosed hurricane bows and improved arresting gear, and refitted many of the 27A ships with angled decks. Eventually, fourteen of the class received full moderizations, with *Leyte*, *Tarawa*, and *Philippine Sea*, serving unmodernized, the *Antietam* seeing duty as a training ship, and the *Boxer*, *Princeton*, and *Valley Forge* serving as helicopter assault carriers (LPHs). The badly damaged *Franklin* and *Bunker Hill* remained in reserve, and were never reactivated or modernized.

The *Essex* class carriers saw extensive action during the war in Vietnam, but their size was an increasing problem. They carried only two catapults, as opposed to four in newer classes, and they were unable to operate the new Phantom aircraft. While the refitted carriers continued to see duty as front line carriers in the 1950s and 1960's, they were increasingly relegate to a variety of other roles, including antisubmarine warfare and amphibious support. However, even after receiving numerous upgrades and major rehabilitations under the FRAM program, they had reached the limit of what their age and size would permit. With the end of the war in Vietnam, the need for large numbers of active carriers ceased, and the last active service *Essex* class carrier, the *Oriskany*, was decommissioned in 1976. The venerable *Lexington* continued in service as a training carrier (AVT-16) until 1990.

As of this writing, five *Essex* class carriers survive. Three are museum ships: the *Yorktown* in Charleston, South Carolina, the *Intrepid* in New York City, and the *Lexington* in Corpus Christi, Texas. The last *Essex* class carrier in the reserve fleet at Bremerton, *Oriskany* has been sold for scrap and is awaiting disposal. The *Hornet* had also been sold for scrap, but the contract was cancelled in 1996 to give the carrier's supporters the opportunity to preserve her as a fourth museum ship in Alameda, California.

I four classes of fleet carriers of the United States Pacific Fleet in World War Two, with the exception of the USS WASP (CV-7) are tied up at NAS Alameda on 16 November 1945. Front to rear are USS SARATOGA (CV-3), USS ENTERPRISE (CV-6), USS HORNET (CV-12), and USS SAN JACINTO (CVL-30). (80-G-701512)AI

Less than year after Japan's surrender, four Essex class carriers and two South Dakota class battleships can be seen in various stages of deactivation in Seattle, Washington. Left to right front row are USS ESSEX (CV-9), USS BON HOMME RICHARD (CV-31), BUNKER HILL (CV-17) and on the second row USS TICONDEROGA (CV-14), USS INDIANA (BB-58), and USS ALABAMA (BB-60). (80-G-373247)



(Above and left) What a difference four years makes. Shown at Ulithi in December 1944 are WASP, YORKTOWN, HORNET, HANCOCK and TICONDEROGA And at Bremerton, Washington four years later in 1948 are six mothballed Essex class carriers, the ESSEX, TICONDEROGA, YORKTOWN, LEXINGTON, BUNKER HILL, and BON HOMME RICHARD. (80-G-294131; 80-G-428458)

(Over leaf) Rosecrans National Cemetery provides a somber view as USS BUNKER HILL (CV-17) leaves San Diego Harbor in July 1973 en route to the scrapper's yard. BUNKER HILL was the last Essex class carrier to survive in her original, unmodernized state. (Photo courtesy of Mrs. June Moeser) (NH 82918).

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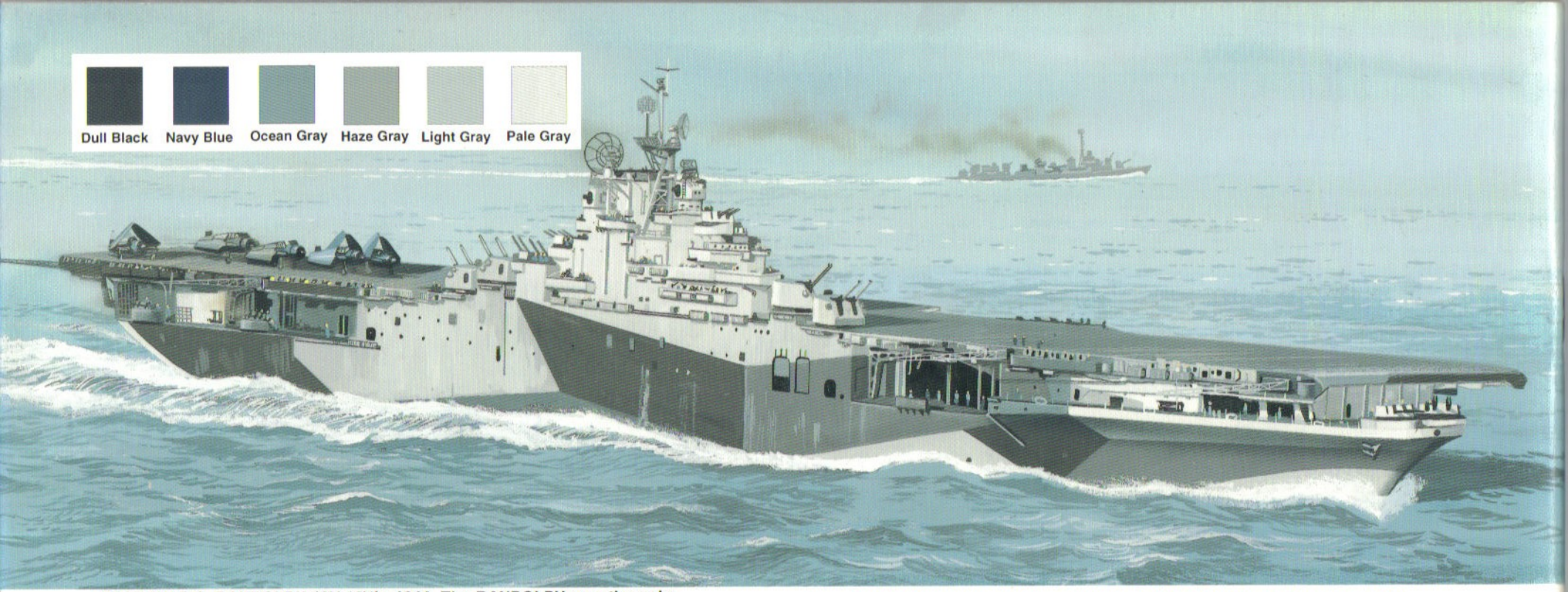

(Above) U.S.S. RANDOLPH (CV-15) in 1944. The RANDOLPH was the only carrier painted in the six color Measure 17A-1.

U.S.S. FRANKLIN shortly after her commisioning. She is wearing Measure 32/6A.

ISBN 0-89747-373-6
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